



# Water Resources Data Puerto Rico and the U.S. Virgin Islands Water Year 1992



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT PR-92-1  
Prepared in cooperation with the Commonwealth of Puerto Rico,  
the Government of the U.S. Virgin Islands and other agencies

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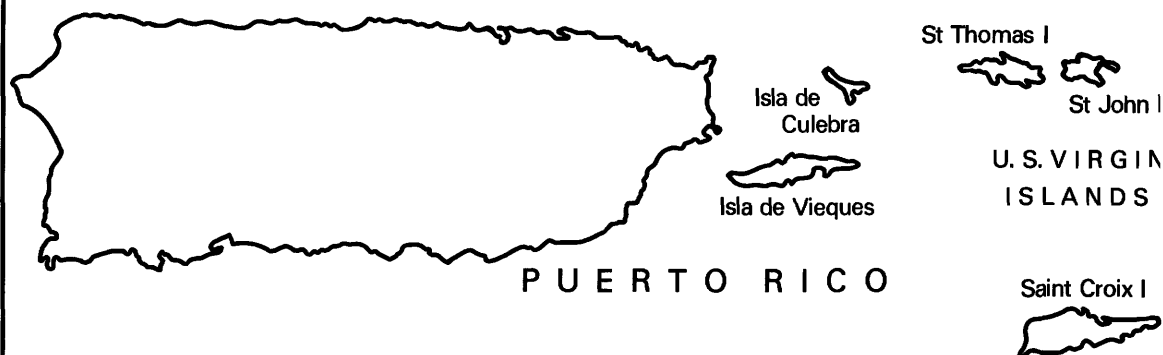
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by P.L. Díaz, Z. Aquino, C. Figueroa-Alamo, R.J. Vachier, and  
A.V. Sánchez



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Prepared in cooperation with the Commonwealth of Puerto Rico,  
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**U.S. DEPARTMENT OF THE INTERIOR**  
**BRUCE BABBITT, Secretary**

**U.S. GEOLOGICAL SURVEY**  
**Dallas L. Peck, Director**

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**U.S. Geological Survey**

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**San Juan, Puerto Rico 00936-4424**

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**1993**



## PREFACE

This annual hydrologic data report of Puerto Rico and the U.S. Virgin Islands is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each state, Puerto Rico, the U.S. Virgin Islands, and the other Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by state, local and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

The report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey, Water Resources Division who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete and adheres to Geological Survey policy and established guidelines, the following personnel contributed significantly to the collection, processing and tabulations of the data:

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<b>16. Abstract (Limit: 200 words)</b>  Water resources data for surface-water, quality-of-water, and ground-water records for the 1992 water year for Puerto Rico and the U.S. Virgin Islands, consists of records of discharge, water quality of streams, and water levels of wells. This report contains discharge records for 74 streamflow-gaging stations; daily sediment records for 21 streamflow stations; 112 partial-record or miscellaneous streamflow stations; stage records for 9 reservoirs; water-quality records for 16 streamflow-gaging stations, 42 ungaged streamsites, 11 lake sites, 2 lagoons, and 1 bay; and water-level records for 91 observation wells. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating local and federal agencies in Puerto Rico and the U.S. Virgin Islands.				
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FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME**

**VII**

(Letter after station name designates type of data:

(d) discharge, (c) chemical, (b) biological, (s) sediment, (p) pesticide, (e) elevation, gage heights)

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**X SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,  
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME--Continued**

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Station number	Station name	Drainage area (mi <sup>2</sup> )	Period of record
50007000	Quebrada de los Cedros near Isabela	6.91	1970
50010600	Río Guajataca above Lago de Guajataca	--	1984-89
50011000	Canal Diversion Lago Guajataca	--	1970
50011200	Río Guajataca below Lago Guajataca	--	1969-70, 1984-87
50011400	Río Guajataca above mouth near Quebradillas	--	1969-70, 1984-89
50013000	Río Camuy near Lares	7.62	1969-71
50014000	Río Criminales near Lares	4.68	1969-70
50016000	Río Camuy near Camuy	--	1969-73
50021000	Río Pellejas at Central Pellejas	5.46	1968-70
50021050	Río Pellejas below Central Pellejas	7.89	1972-75
50021500	Río Pellejas near Utuado	9.55	1969-71
50023000	Río Viví near Central Pellejas	5.66	1969-75
50027200	Río Grande de Arecibo blw. Lago dos Bocas	169	1970-71
50029000	Río Grande de Arecibo at Central Cambalache	200	1969-83
50031500	Río Sana Muerto near Orocovis	3.68	1965-70
50035200	Río Grande de Manatí at Hwy 145 at Ciales	132	1972
50035950	Río Cialitos at Hwy 649 at Ciales	17	1970-82
50038360	Río Mavilla near Corozal	9.51	1969-70
50038600	Río Unibón near Morovis	5.29	1969-70
50038700	Río Morovis at Morovis	1.26	1968
50038900	Río Indio at Vega Baja	--	1963, 66, 71
50039600	Río Cibuco at Central San Vicente	--	1969-72
50043200	Río Usabon near Barranquitas	9.15	1968-69, 71
50043400	Río Aibonito Tributary near Aibonito	1.13	1968-71
50044600	Río Guadiana near Naranjito	1.73	1971
50044650	Quebrada del Toro near Naranjito	0.54	1971
50044800	Quebrada Anones near Naranjito	2.32	1971
50045700	Río Lajas at Toa Alta	8.65	1966-75
50047820	Río de Bayamón at Hwy 174 near Bayamón	31.90	1966
50048000	Río de Bayamón at Bayamón	71.90	1963-67
50049310	Quebrada Josefina at Piñero Avenue	3.84	1988-91
50053050	Río Turabo at Borinquen	7.89	1984-90
50054000	Quebrada de las Quebradillas near Caguas	6.25	1969-71, 73
50055650	Quebrada Caimito near Juncos	0.82	1984-87
50056000	Río Valenciano near Las Piedras	6.85	1971
50058300	Quebrada Arena near Caguas	--	1971
50061300	Río Canovanillas near Loíza	14.40	1968-73
50062500	Río Herrera near Colonia Dolores	2.75	1968-72
50063300	Río Espíritu Santo near El Verde	2.23	1968-73
50065700	Río Mameyes at Hwy 191 at Mameyes	11.80	1967-85
50072000	Río Fajardo at Fajardo	21.60	1960-63
50073200	Río Dagua at Dagua	2.26	1966-82
50073400	Quebrada Palma at Dagua	4.84	1972-77
50074000	Río Santiago at Naguabo	4.99	1966-82
50075500	Río Blanco at Florida	11.00	1966-82
50076000	Río Blanco near Florida	12.30	1983-85
50077000	Río Blanco at Río Blanco	17.60	1973-77
50077400	Río Blanco at Colonia La Fe	18.80	1967-70
50078500	Río Anton Ruíz at Central Pasto Viejo	4.33	1968
50081500	Río Humacao near Humacao	9.23	1973
50082000	Río Humacao at Hwy 3 at Humacao	17.30	1983-85
50082200	Río Humacao near La Suiza	19.90	1965-66, 1969-71
50082800	Río Guayanés near Colonia Laura	4.69	1969-82
50083500	Río Guayanés near Yabucoa	17.20	1969-71
50084000	Río Limones near Yabucoa	7.89	1969-71
50085100	Río Guayanés at Central Roig	26.60	1965-66, 1968, 70
50086100	Río del Ingenio at Comunas	5.50	1965-66, 1968-69
50086500	Río Guayanés at Playa Guayanés	34.00	1965-66, 1968-71
50087200	Caño Santiago near Central Roig	6.04	1965-71
50091000	Río Maunabo at Maunabo	12.40	1965, 67, 1969-82

## DISCONTINUED STREAMFLOW STATIONS--Continued

Station number	Station name	Drainage area (mi <sup>2</sup> )	Period of record
50091200	Río Maunabo near Maunabo	12.70	1971-72
50091400	Río Jacaboa near Lamboglia	4.13	1965-73
50091700	Río Chico at Patillas	6.82	1965, 1969-72
50091800	Río Chico at Providencia	4.90	1965, 1967-69, 1971
50094200	Río Grande de Patillas at Patillas	27.90	1967, 1969, 1971
50094300	Río Grande de Patillas at Providencia	29.00	1971
50094400	Río Nigua at Pitahaya	5.86	1965, 1969, 1970-71, 1973
50095200	Río Guamaní at Guayama	8.22	1969-71
50095500	Río Guamaní near Guayama	12.30	1969-70
50099000	Quebrada Aguas Verdes near Salinas	0.39	1989
50106500	Río Coamo near Coamo	46.00	1967-68 1984-85, 1986
50106900	Río Coamo below Lago Coamo near Coamo	65.40	1967-68
50107200	Río Coamo at mouth near Santa Isabel	69.30	1967-68
50108200	Río Descalabrado at Las Ollas	13.90	1965, 1967-71
50108500	Río Descalabrado near Santa Isabel	18.10	1966-67
50111200	Río Toa Vaca near Villalba	21.40	1966-70
50111700	Río Jacaguas near Juana Díaz	53.20	1966-68
50111750	Río Jacaguas below Quebrada Guanábana	56.30	1989
50112100	Río Jacaguas near Arús	59.60	1966-67
50112600	Río Inabón at Coto Laurel	--	1967-71
50113100	Río Guayo near Coto Laurel	11.80	1965, 1968-71
50113500	Río Inabón near Arús	30.20	1964-65
50114400	Río Bucaná near Ponce	25.60	1965-81
50114700	Río Bucaná near Playa de Ponce	28.40	1964-67
50115900	Río Portugués at Hwy 14 at Ponce	--	1965-82
50116500	Río Portugués at Highway 2 Bypass at Ponce	20.50	1964-65
50119000	Río Matilde at Ponce	19.40	1965-66
50121000	Río Tallaboa at Peñuelas	24.20	1959-82
50122000	Río Tallaboa at Tallaboa	31.50	1959-63
50124000	Río Guayanilla nr Guayanilla	18.50	1961-69
50124500	Río Guayanilla at Guayanilla	20.80	1971-82
50125900	Río Duey above Diversion near Yauco	8.93	1977-80
50126150	Río Yauco above Diversion Monserrate near Yauco	27.20	1978-85
50128000	Río Yauco near Yauco	45.50	1962-64, 1977-85
50129000	Río Loco near Yauco	8.50	1963-67
50129500	Río Loco near Guánica	21.00	1963-69
50129900	Laguna Cartagena near Boquerón	--	1984-86
50130320	Quebrada Mamey at Joyuda	0.38	1986-88
50136000	Río Rosario at Rosario	16.40	1975-86
50141000	Río Yahuecas near Adjuntas	15.40	1980-85
50145000	Río Grande de Añasco at El Espino	108.00	1959-66, 1961-63
50147000	Río Culebrinas at San Sebastian	16.70	1960-82
50276000	Turpentine Run at Mariendal	2.97	1963-69, 1978-86

## INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with local and federal agencies obtains a large amount of data pertaining to the water resources of the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the area. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data for Puerto Rico and the U.S. Virgin Islands, 1992."

This report includes records on both surface and ground water. Specifically, it contains: (1) Discharge records for 74 streamflow-gaging stations, stage only for 11 gaging stations, daily sediment records for 21 streamflow stations, 112 partial-record or miscellaneous streamflow stations, stage records for 9 reservoirs, and (2) water-quality records for 16 streamflow-gaging stations, and for 42 ungaged streamsites, 11 lake sites, 2 lagoons, and 1 bay; and (3) water-level records for 91 observation wells.

Water-resources data for Puerto Rico for calendar years 1958-67 were released in a series of reports entitled "Water Records of Puerto Rico". Water-resources data for the U.S. Virgin Islands for the calendar years 1962-69 were released in a report entitled "Water Records of U.S. Virgin Islands." Included were records of streamflow, ground-water levels, and water-quality data for both surface and ground water.

Beginning with the 1968 calendar year, surface-water records for Puerto Rico were released separately on an annual basis. Ground-water level records and water-quality data for surface and ground water were released in companion reports covering periods of several years. Data for the 1973-74 reports were published under separate covers. Water-resources data reports for 1975-76, 1977, 1978, 1979-80, 1981-82, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, and 1991 water years consist of one volume each and contain data for streamflow, water quality and ground water.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report PR-92-1". These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia, 22161. Beginning with the 1990 water year, all water-data reports will also be available on Compact Disc-Read Only Memory (CD-ROM). All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on back of the title page or by telephone (809) 749-4346. A limited number of CD-ROM discs will be available for sale by the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, Colorado 80225.

**COOPERATION**

The U.S. Geological Survey has had cooperative agreements with organizations of the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands for the systematic collections of water resources data since 1958. Organizations that supplied data are acknowledged in the station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

Puerto Rico Environmental Quality Board  
Puerto Rico Aqueduct and Sewer Authority  
Puerto Rico Department of Agriculture  
Puerto Rico Industrial Development Company  
Puerto Rico Department of Housing  
Puerto Rico Highway Authority  
Puerto Rico Department of Natural Resources  
Puerto Rico Department of Health  
Puerto Rico Electric and Power Authority  
Puerto Rico Planning Board  
Water Resources Research Institute, University of Puerto Rico  
Water Resources Research Institute, College of the Virgin Islands  
U.S. Virgin Islands Water and Power Authority  
U.S. Virgin Islands Energy Office  
U.S. Virgin Islands Department of Planning and Natural Resources

Funds were also provided by the Corps of Engineers, U.S. Army, for the collection of records at seven gaging stations published in this report.



## SUMMARY OF HYDROLOGIC CONDITIONS

## Precipitation

Precipitation throughout Puerto Rico during the 1992 water year (October 1991 to September 1992) averaged about 94 percent of normal. However, precipitation was 84 percent of normal in northern Puerto Rico, 102 percent of normal in southern Puerto Rico, 104 percent of normal in eastern Puerto Rico, and 91 percent of normal in western Puerto Rico. Unusually dry conditions prevailed during most of the 1992 water year except for the months of January and May. May was the wettest month of the 1992 water year. Monthly average precipitation islandwide for the 1992 water year and for the 30-year reference period 1951-1980 used to define normal rainfall, as reported by the National Oceanic and Atmospheric Administration, are listed in table 1.

**Table 1. Islandwide monthly precipitation and annual averages for the 1992 water year and the 30-year reference period, 1951-80**

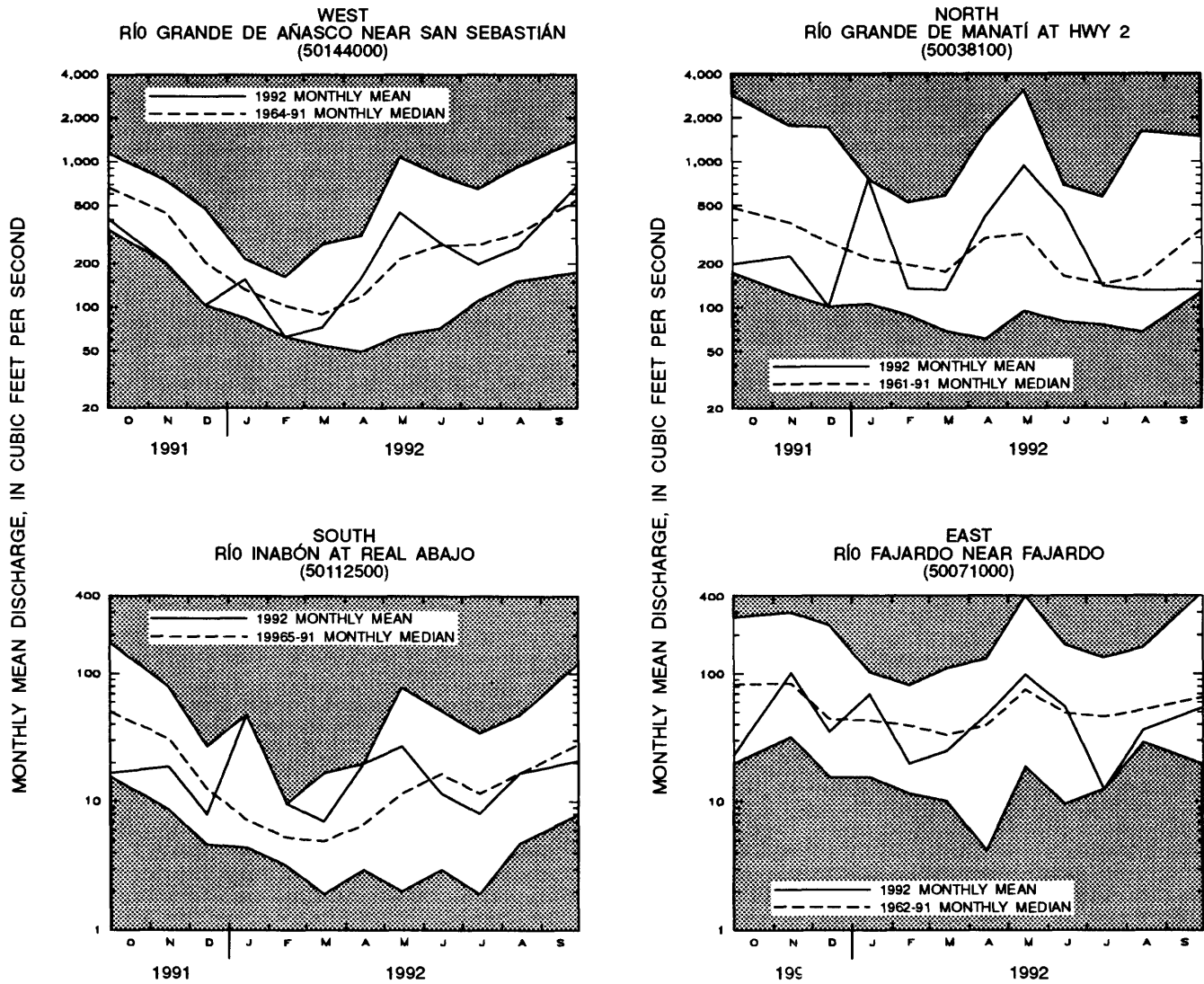
Month	1992 Water Year (inches)	30-year normal (inches)
OCT	4.23	7.74
NOV	5.60	5.95
DEC	2.35	4.32
JAN	7.58	3.08
FEB	1.61	2.35
MAR	2.78	2.62
APR	4.38	4.63
MAY	11.30	6.48
JUN	4.37	5.58
JUL	3.97	5.48
AUG	6.08	7.28
SEP	5.43	7.78
TOTAL	59.68	63.29

## Surface Water

Streamflow in Puerto Rico was slightly above normal during water year 1992, based on the index stations with monthly-mean discharges about 10 percent greater than the long-term median. The 1992 monthly-mean flow, the long-term monthly median flow, and extreme monthly flows are shown for four index stations in figure 1.

High and low long-term monthly median flows were recorded during water year 1992 (fig. 1). New high long-term monthly flows were recorded at Río Grande de Manatí at Hwy 2 (50038100) during January 1992, and at Río Inabón at Real Abajo (50112500) during January, February, and April 1992. New low long-term monthly flows were recorded at Río Grande de Añasco near San Sebastián (50114000) during November and December 1991, and February 1992; at Río Grande de Manatí at Hwy 2 (50038100) during December 1991 and at Río Fajardo near Fajardo (50071000) during July 1992.

October 1991 was unusually dry with monthly-mean flows less than 60 percent of the long-term October median. Streamflows below the long-term monthly-median flow continued into November and December. January was exceptionally wet with above normal monthly-mean flows and historical maximum-peak flows for many stations in the streamflow network. Heavy precipitation on January 5-6, 1992 caused islandwide flash floods resulting in 23 deaths and total damage estimated in 155 million dollars. Peak discharges for 18 stations in the areas most affected by this flood are listed in table 2.



Unshaded area indicates range between highest and lowest monthly mean discharges for the period of record.

Figure 1.--Monthly mean discharge of selected streams in Puerto Rico.

Two of the most important stations in the network, Río Grande de Loíza below Damsite (50059050) and Río Grande de Patillas near Patillas (50092000), which peak flows are listed in table 2, were not published in this volume because records were questionable and were withheld until additional data have been collected.

During February and March, streamflow declined below the long-term median at the index stations except the Río Inabón at Real Abajo, in the southern part of the island. Streamflows during April, May, and June increased due to excessive rainfall activity. During the last week of May, peak discharges at many stations were as high as those of January 5-6. Streamflow conditions from July to September were variable, but stayed below the islandwide long-term median.

In Vieques, Culebra, and the U.S. Virgin Islands (St. Thomas, St. Croix, and St. John), precipitation and streamflow patterns were similar to those in Puerto Rico. Rainfall in the U.S. Virgin Islands during 1992 water year was 77 percent of normal.

**Table 2. Peak discharges during January 5-6, 1992 and maximums previously recorded at selected streamflow gaging stations in Puerto Rico**

Station number	Station name	Drainage area (mi <sup>2</sup> )	Period of record	Maximum discharge Date	Maximum discharge previously recorded (ft <sup>3</sup> /s)	Maximum for January 5-6, 1992 Day	Maximum discharge (ft <sup>3</sup> /s)
50043000	Río de La Plata at Proyecto La Plata	54.8	1960-92	08-27-61	59,600	5	73,600
50043800	Río de La Plata at Comerío	109	1988-92	09-18-89	32,000	5	127,000
50044830	Río Guadiana at Guadiana	9.19	1990-92	02-05-91	4,600	5	6,670
50045010	Río de La Plata below La Plata Dam	173	1989-92	09-18-89	48,800	5	127,000
50046000	Río de La Plata at Hwy 2 near Toa Alta	200	1960-92	09-06-60	95,500	5	118,000
50050900	Río Grande de Loíza at Quebrada Arenas	6.00	1978-92	11-05-83	11,700	5	18,200
50051150	Quebrada Blanca at El Jagual	3.25	1985-92	05-17-85	7,400	5	7,870
50051800	Río Grande de Loíza at Hwy 183 near San Lorenzo	25.0	1990-92	10-20-90	7,510	5	40,700
50055000	Río Grande de Loíza at Caguas	89.8	1960-92	09-06-60	71,500	5	42,800
50055225	Río Caguitas at Villa Blanca at Caguas	16.9	1991-92	07-16-91	2,060	5	13,300
50055390	Río Bairoa at Bairoa	5.08	1991-92	07-16-91	742	5	1,580
50059050	Río Grande de Loíza below Damsite	209	1987-92	11-27-87	124,300	5	79,500
50067000	Río Sabana at Sabana	3.96	1980-92	04-21-83	9,010	5	9,600
50071000	Río Fajardo near Fajardo	14.9	1962-92	09-18-89	23,500	5	23,300
50092000	Río Grande de Patillas near Patillas	18.3	1966-92	09-16-75	14,800	5	30,900
50100200	Río Lapa near Rabo del Buey	9.92	1989-92	10-20-90	1,750	5	15,700
50100450	Río Majada at La Plena	16.7	1989-92	10-25-90	3,820	5	15,200
50110900	Río Toa Vaca above Lago Toa Vaca	7.64	1989-92	08-24-89	3,740	5	8,710

### Ground-Water Levels

Ground-water levels in the major aquifers of Puerto Rico during water year 1992 followed a seasonal trend associated with rainfall. Two significant rainfall events, one in January and the other in May, caused ground-water levels to rise; recharging the major coastal aquifers. Record-high water levels were recorded at several wells in Puerto Rico and the U.S. Virgin Islands (table 3).

In the north coast limestone aquifer, ground-water levels at the Sabana Hoyos index well rose from October 1991 to January 1992 (fig. 2). Thereafter, water levels declined until mid-May, when above normal rainfall reversed the trend. A declining trend was observed during the rest of the water year.

In the south coast alluvial aquifers, the Yauco and Alomar index wells recorded generally declining ground-water levels from October 1991 to January 1992 (fig. 2). In mid-May, ground-water levels rose about 8 and 2 ft at Yauco and Alomar index wells, respectively, due to intense rainfall in the area. From May until the end of the water year 1992 water-levels changed very little at the Yauco index well and declined at the Alomar index well due to ground-water withdrawals for public irrigation and industrial use.

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Ground-water levels in the U.S. Virgin Islands in the observation well 11 at Guinea Gut, St. John followed a seasonal trend associated with rainfall (fig. 2). Water-levels were affected by rainfall events during November and December 1991 and on January and May 1992. From January to early-May 1992 the water-level in Guinea Gut well dropped 12.0 ft in response to below normal rainfall in the area.

**Table 3. Highest ground-water levels recorded during 1992 water year and previous high ground-water levels at selected wells in Puerto Rico and the U.S. Virgin Islands**  
[PR, Puerto Rico; St.C, St. Croix; St.T, St. Thomas; St.J, St. John; mm-dd-yy, month-day-year, ft-blnd, feet below land surface datum, mm-yy, month-year]

Well name	Local number	Location	1992 high water (ft-blnd)	Date (mm-dd-yy)	Previous high water (ft-blnd)	Date (mm-dd-yy)	Period of record (mm-yy)
Salto 1	165	PR	38.75	09-23-92 09-26-92	38.81	10-05-90 10-07-90 10-08-90	1-82 to 9-92
La Esperanza 2	PN-2	PR	8.07	06-08-92 06-09-92 06-10-92	8.12	10-22-90	7-89 to 9-92
Jardín Botánico 3	PN-19	PR	4.04	06-09-92	6.37	09-30-91	6-91 to 9-92
HW-TW-05B	HW-TW-05B	PR	7.89	05-26-92	9.40	08-25-88	4-88 to 9-92
RM 5	RM 5	PR	7.48	05-26-92	8.15	10-26-90	3-89 to 9-92
WAPA-23a	15	St.C	55.29	10-01-91	56.84	02-13-91	2-90 to 9-92
VIEO-1	7	St.T	68.23	02-11-92	71.88	06-16-91	5-91 to 9-92
VIEO-2	12	St.J	21.47	06-05-92 06-06-92 06-07-92 06-08-92	23.48	05-23-91 05-24-91 05-25-91 05-26-91	5-91 to 9-92
VIEO-3	13	St.J	52.04	12-03-91 12-04-91 12-05-91	52.21	09-30-91	5-91 to 9-92
VIEO-4	14	St.J	9.95	06-05-92	10.50	09-29-91	5-91 to 9-92

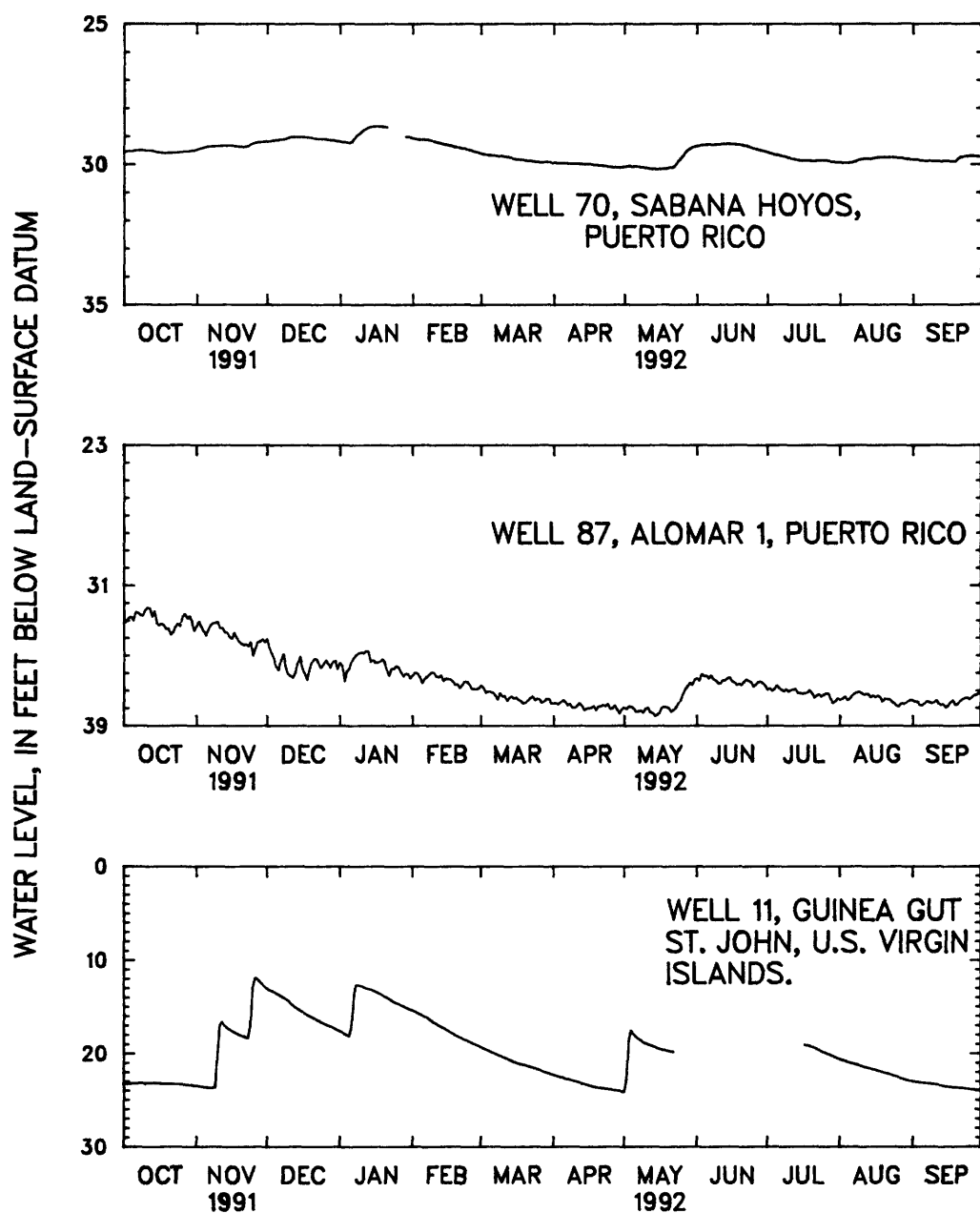


Figure 2.--Ground-water levels at selected wells in Puerto Rico and the U.S. Virgin Islands.

## Water Quality

In water year 1992, the U.S. Geological Survey, in cooperation with local government agencies, completed the eighth year of sampling for the constituents listed in table 4. These constituents were added to the water quality monitoring program in 1985 and are in addition to the major chemical constituents and physical properties monitored in the continuing water quality monitoring program in Puerto Rico. The highest concentration of selected constituents detected during water year 1992, along with the stations at which these concentrations were detected, are summarized in table 4.

**Table 4. Surface-water quality stations in Puerto Rico with highest concentration of selected constituents during water year 1992**  
[All constituent concentrations are in milligrams per liter; MBAS, Methylene blue active substance]

Station number	Station name	Constituent	Concentration
50106500	Río Portugués near Ponce	Sulfide	0.8
50129700	Río Loco at Guánica	Boron	0.7
50124700	Río Guayanilla at Central Rufina	Manganese	1.2
50055400	Río Grande de Arecibo near Utuado	Iron	14
50043000	Río de La Plata at Proyecto La Plata	Iron	14
50149100	Río Culebrinas near Aguada	Zinc	0.12
50149100	Río Culebrinas near Aguada	Cyanide	0.06
50055250	Río Caguaitas at Hwy 30 at Caguas	Phenols	0.011
50055250	Río Caguaitas at Hwy 30 at Caguas	MBAS	1.7

The presence of high concentrations of fecal coliform (FC) and fecal streptococci (FS) bacteria continued to be the principal surface-water quality problem in Puerto Rico during water year 1992. Bacteria concentration exceeding one million colonies per hundred milliliters of raw water were not observed at any sampling station during this water year as observed in previous years.

The highest concentrations observed during this year were in the San Juan metropolitan area monitoring stations (figs. 3 and 4), which has the highest population density in Puerto Rico. In addition to the effluent from the San Juan metropolitan area, the streams also receive effluent from the upper basin sewage treatment plants servicing urban and suburban zones.

The main sources of contamination in surface-water systems in Puerto Rico are discharges of liquid wastes from industrial and municipal sources. The highest concentration of fecal coliforms and fecal streptococcus bacteria in surface-waters occurred in heavily populated and industrialized areas of the island.

Elevated concentration of suspended sediment are a common problem in many streams in Puerto Rico, especially in the coastal areas. Suspended sediment concentrations are of concern because the deposition of these sediments is rapidly reducing the storage capacities of reservoirs used for water supply. Suspended sediment concentration were monitored at twenty one sites in Puerto Rico during the 1992 water year as part of the cooperative program between the U.S. Geological Survey and various other Commonwealth and Federal agencies.

### SPECIAL NETWORKS AND PROGRAMS

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites on NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

### EXPLANATION OF RECORDS

The surface-water and ground-water records published in this report are for the 1992 water year that began October 1, 1991 and ended September 30, 1992. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 3 to 10. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

#### Station Identification Numbers

Each data station, whether streamsite or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells.

#### Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations in first rank, second rank, and other ranks of tributaries.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 50028000, which appears just to the left of the station name, includes the 2-digit part number "50" plus the 6-digit downstream order number "028000."

#### Latitude-Longitude System

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. The numbers shown in the grid correspond to the local numbers assigned to each well as visited in the field. An example is well 16 (fig.12).

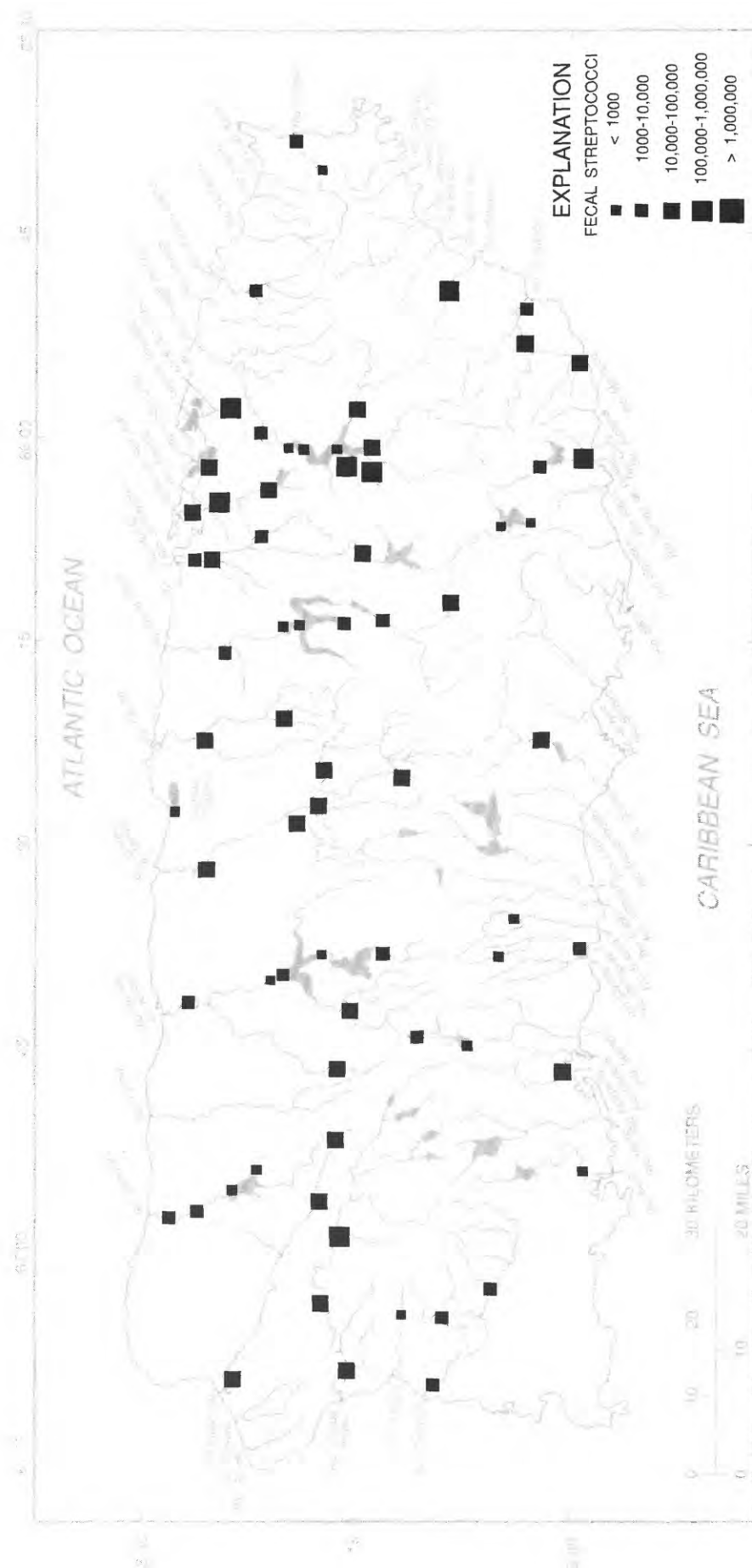


Figure 3.--Location of fecal coliform bacteria concentration at sampled sites.



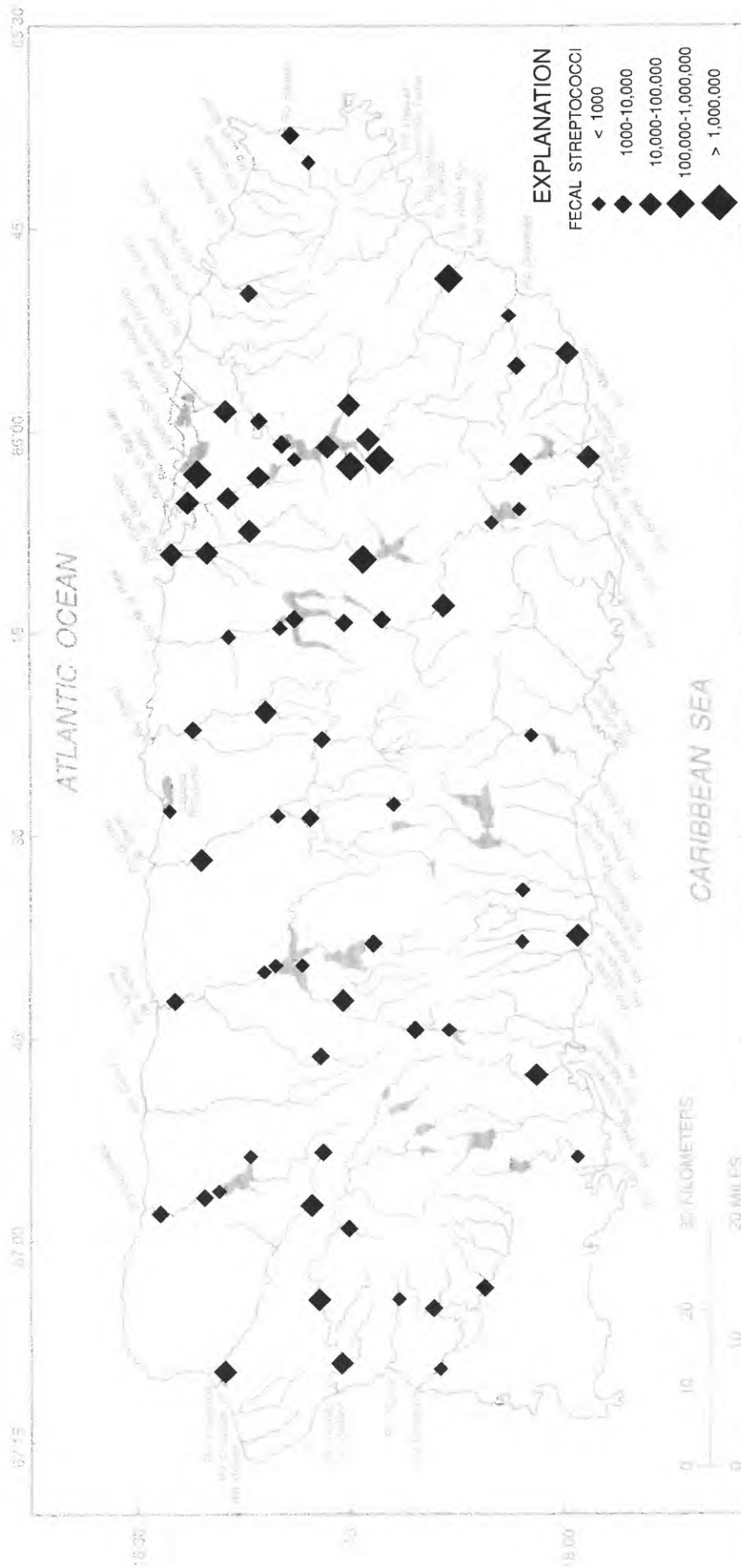


Figure 4.--Location of fecal streptococci bacteria concentration at sampled sites.

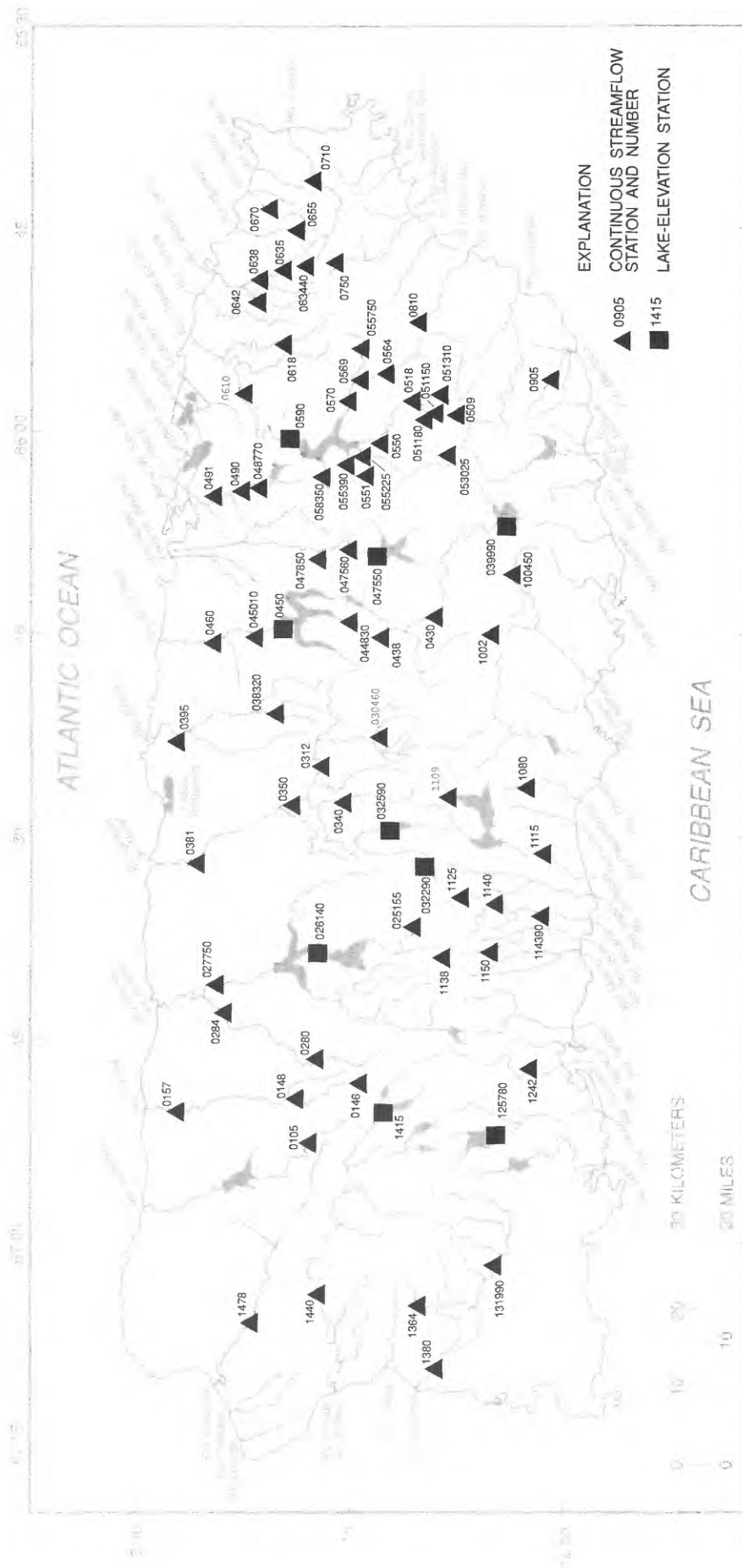


Figure 5--Location of surface-water stations in Puerto Rico.

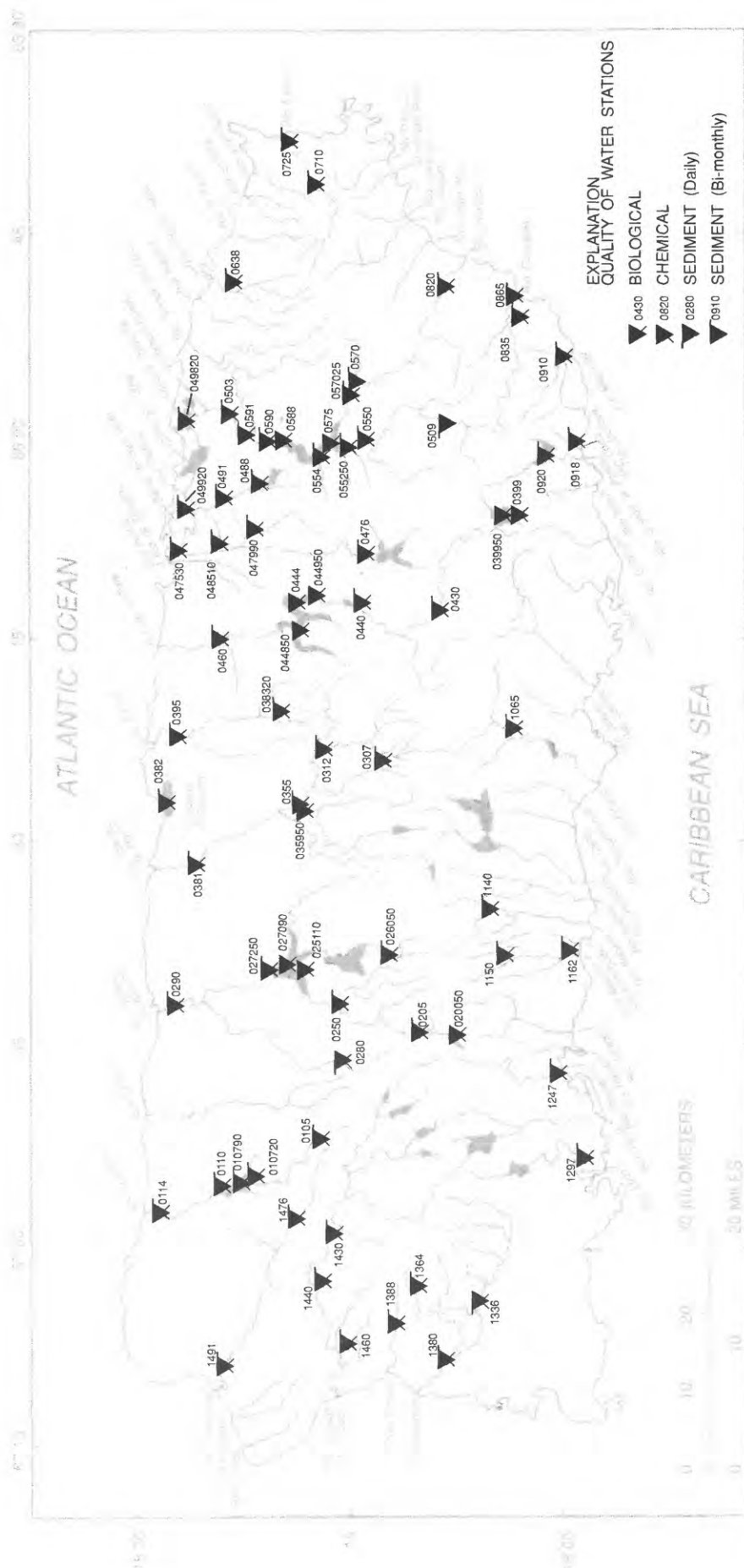


Figure 6--Location of water-quality stations in Puerto Rico.

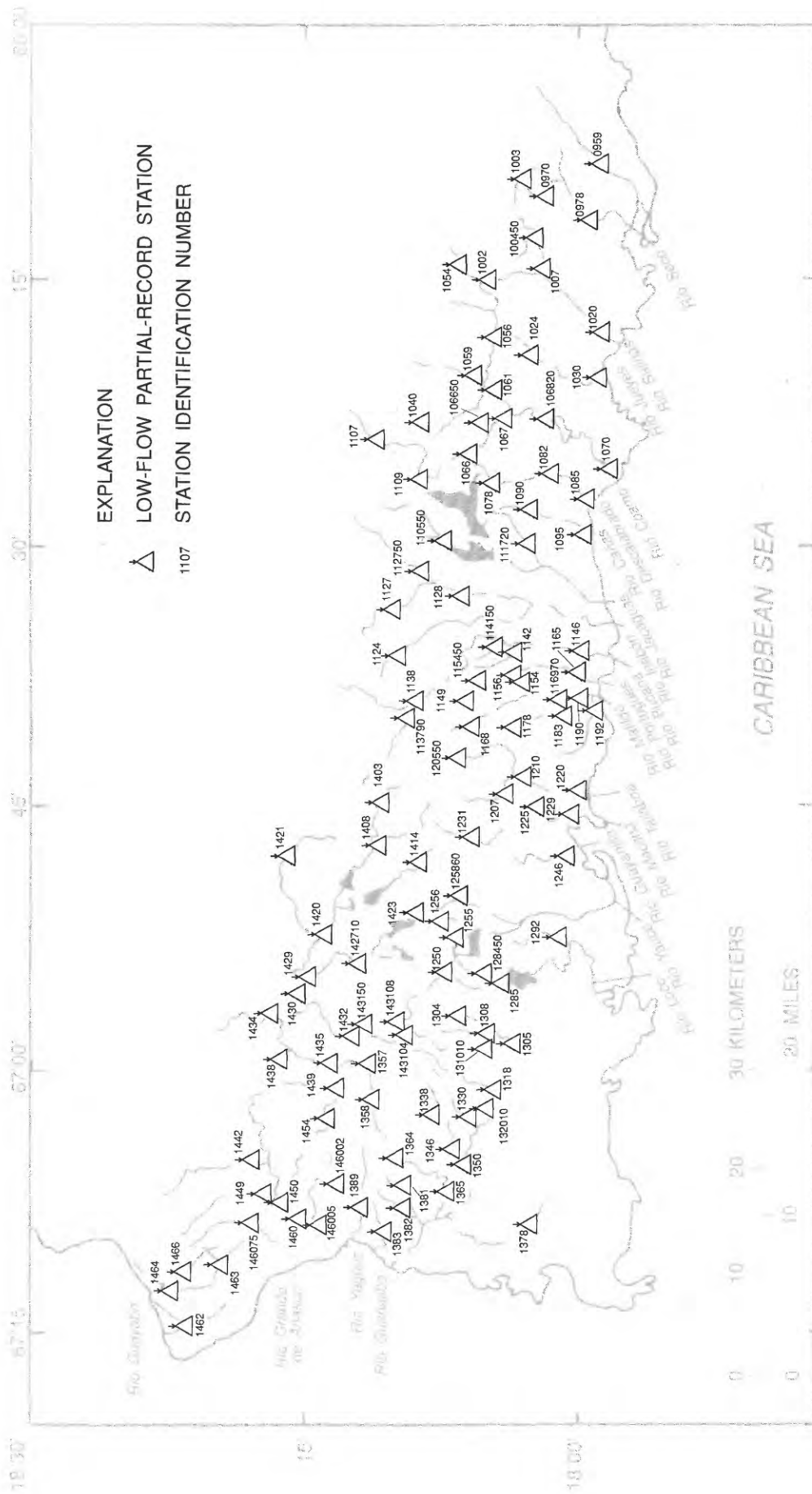


Figure 7--Location of low-flow partial-record stations in southwest Puerto Rico.

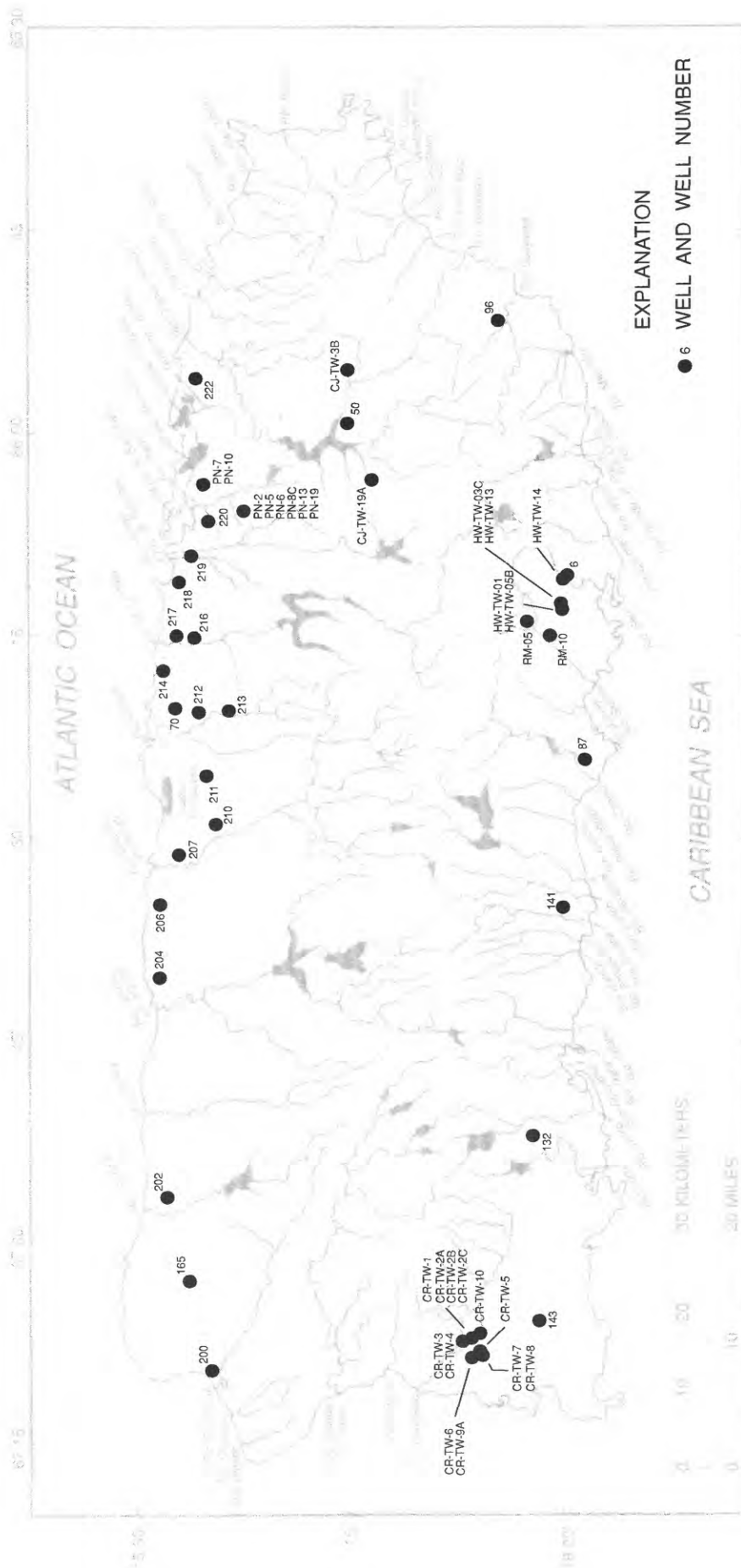


Figure 8--Location of ground-water stations in Puerto Rico.

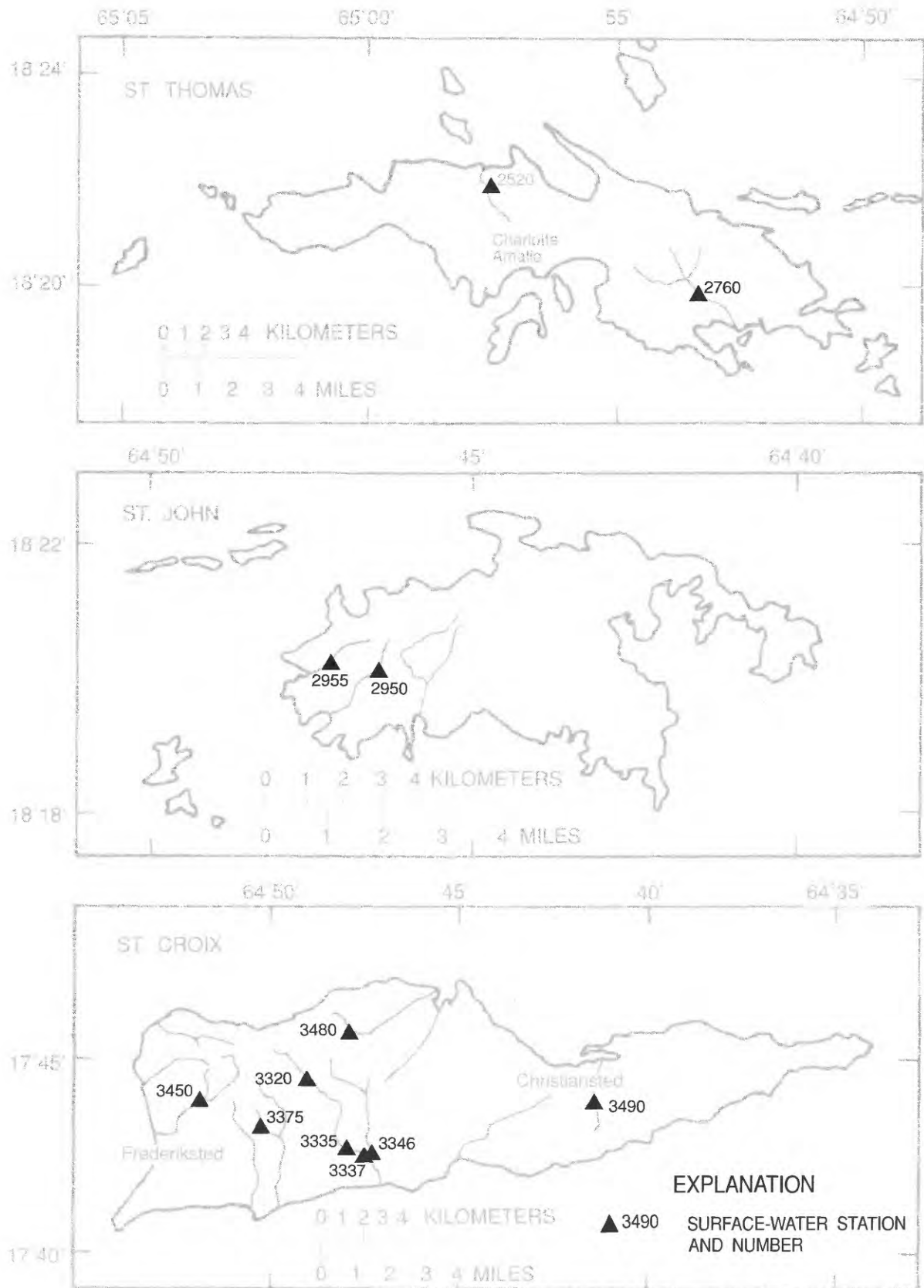


Figure 9--Location of surface-water stations in the U.S. Virgin Islands.

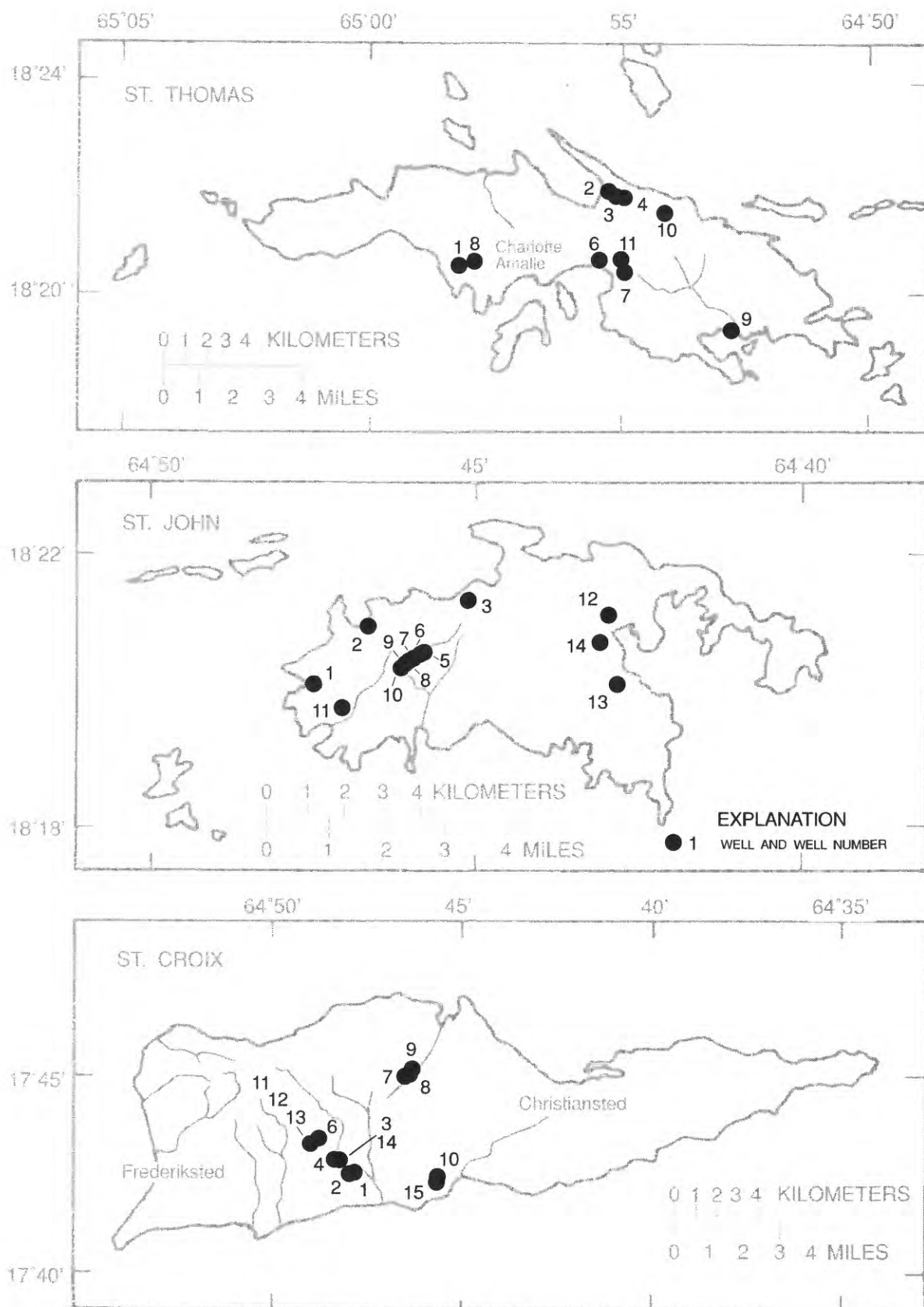


Figure 10:-Location of ground-water stations in the U.S. Virgin Islands.

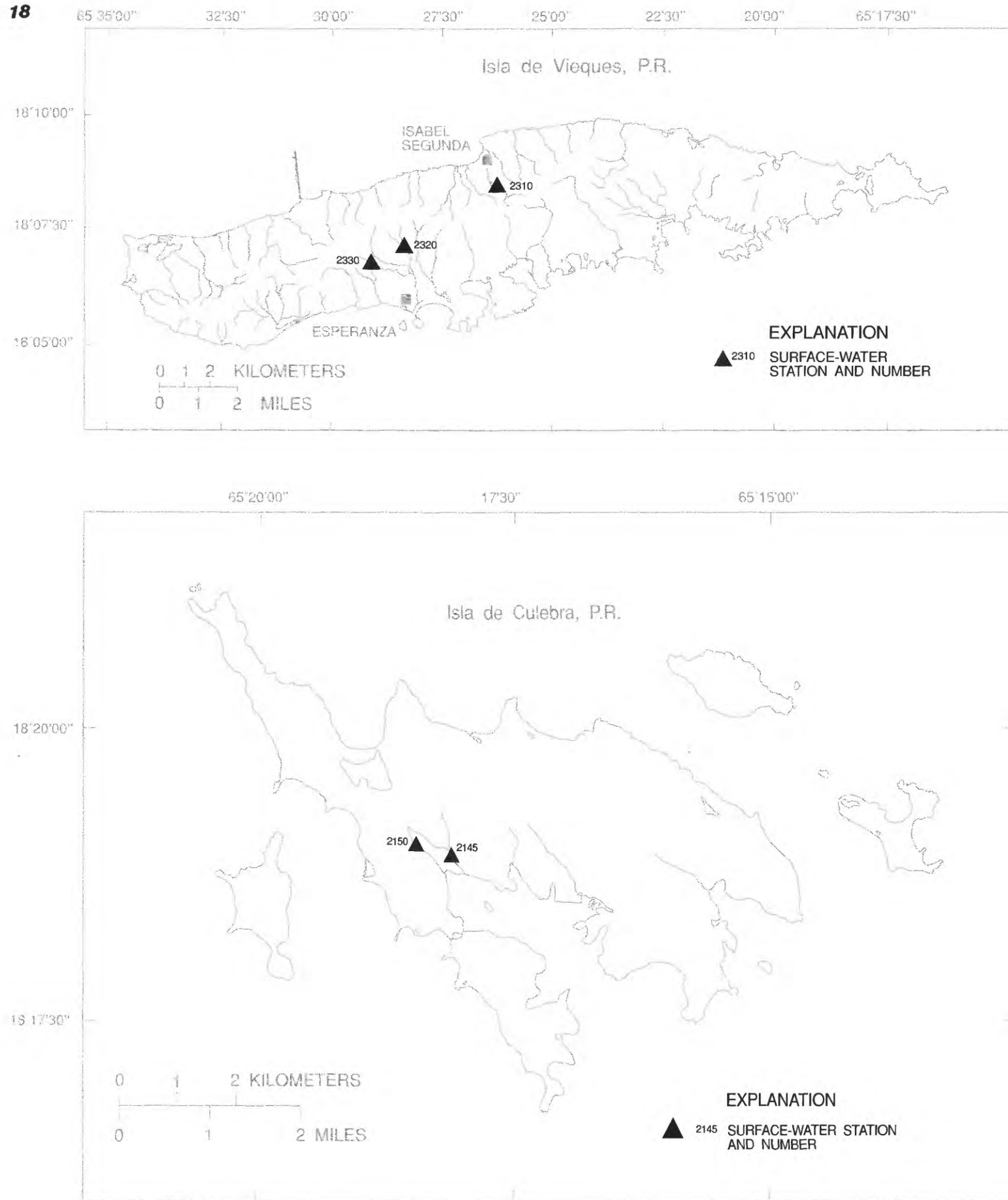


Figure 11.--Location of surface-water stations in Vieques and Culebra Islands.



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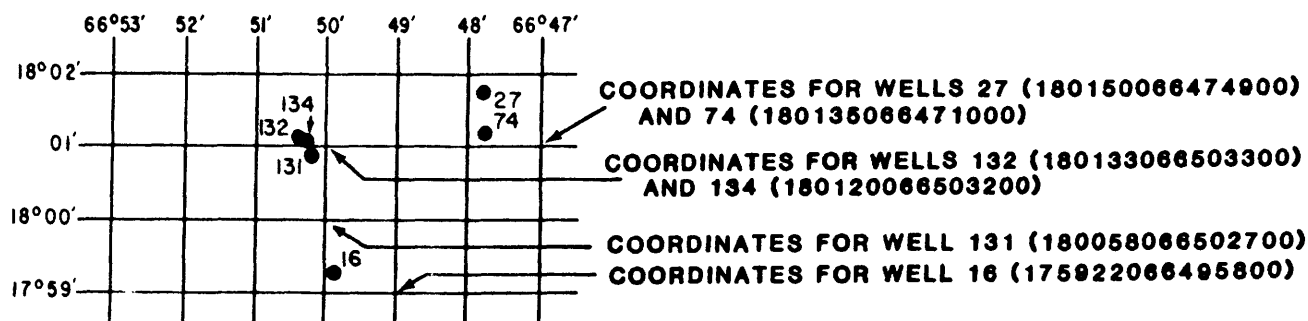


Figure 12.--Grid showing system for numbering wells and miscellaneous sites (latitude and longitude).

#### Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table title such as "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this type of report. Location of all complete-record stations for which data are given in this report are shown in figures 5 and 8.

#### Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consists of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals or electronic satellite data collector platforms that receive stage values at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and contents. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly or yearly changes then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic surveys may be necessary to redefine it. Even when this is done, as time between the last survey increases, the contents computed may increase in error. Discharges over lake or reservoir spillways are computed from stage-discharge relationships much as other stream discharges are computed.

For some gaging stations there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is loose in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

### Data Presentation

Steamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1992 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of four parts, the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period, by water year; and a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimum, and flow duration.

#### Station manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the stations descriptions.

**LOCATION.**--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given.

**DRAINAGE AREA.**--Drainage areas are measured using the most accurate maps available. Drainage areas are updated as better maps become available.

**PERIOD OF RECORD.**--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

**REVISED RECORDS.**--Because of new information, published records occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

**GAGE.**--The type of gage in current use, the datum of the current gage, and a condensed history of the types, locations, and datums of previous gages are given under this heading.

**REMARKS.**--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computations, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

**COOPERATION.**--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

**REVISIONS.**--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District office to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

#### Data table of daily mean value

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed "TOTAL" gives the sum of the daily figures for each month; the line headed "MEAN" gives the average flow in cubic feet per second for the month; and the lines headed "MAX" and "MIN" give the maximum and minimum daily mean discharges, respectively, for each month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"); or in inches (line headed "IN"); or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches or in acre-feet may be omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1992

Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flow are provided immediately below those figures. The designated period will be expressed as "FOR WATER YEARS \_\_\_\_-\_\_\_\_, BY WATER YEAR (WY)," and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station records within the specified water years, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

Summary statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, "WATER YEARS \_\_\_\_-\_\_\_\_," will consist of all of the station records within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (see line headings below.), except for the "ANNUAL 7-DAY MINIMUM" statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN.--The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistics.)

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1992

**INSTANTANEOUS PEAK FLOW.**--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office. (See address on back of the title page of this report.)

**INSTANTANEOUS PEAK STAGE.**--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

**INSTANTANEOUS LOW FLOW.**--The minimum instantaneous discharge occurring for the water year or for the designated period.

**ANNUAL RUNOFF.**--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurements in presenting annual runoff data:

Acre-foot (AC-FT) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area.

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

**10 PERCENT EXCEEDS.**--The discharge that is exceeded by 10 percent of the flow for the designated period.

**50 PERCENT EXCEEDS.**--The discharge that is exceeded by 50 percent of the flow for the designated period.

**90 PERCENT EXCEEDS.**--The discharge that is exceeded by 90 percent of the flow for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in a table of discharge measurements at low-flow partial-record stations. These measurements are generally made in times of drought to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

### Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables are identified by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated."

### Accuracy of the Records

The accuracy of streamflow records depends primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements; and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned, are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft<sup>3</sup>/s; to the nearest tenth between 1.0 and 10 ft<sup>3</sup>/s; to whole numbers between 10 and 1,000 ft<sup>3</sup>/s; and to 3 significant figures for more than 1,000 ft<sup>3</sup>/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1992

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables are on file in the Caribbean District office. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the District office.

### Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

### Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 6.

### Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurement at miscellaneous sites.

### On-site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. Detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1992

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records, when available, (hourly values) may be obtained from the U.S.G.S. District office whose address is given on the back of the title page of this report.

### Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the District office.

### Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating and pumping sediment samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included for some stations.

### Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratories in Denver, Co. or Ocala, Fla. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratories are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

**WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1992****Data Presentation**

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first, and tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence, when these parameters are studied.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.



# WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1992

## Remark Codes

The following remark codes may appear with the water-quality data in this report:

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

## Records of Ground-Water Levels

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

## Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figure 10.

Water-level records are obtained from direct measurements with a steel tape or from the graph or punched tape of a water-stage recorder. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every day and as an instantaneous observation at noon.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth of a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

**WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1992****Data Presentation**

Each well record consists of three parts, the station description, the data table of water levels observed during the water year and a graph of the water levels for the current water year and other selected period. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings of the well description.

**LOCATION.**--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); a landline location designation; the hydrologic-unit number; the distance and direction from a geographic point of reference; and the owner's name.

**AQUIFER.**--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

**WELL CHARACTERISTICS.**--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

**INSTRUMENTATION.**--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

**DATUM.**--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above mean sea level datum, if available. It is reported with precision depending on the method of determination.

**REMARKS.**--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-Survey) observers.

**PERIOD OF RECORD.**--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

**EXTREMES FOR PERIOD OF RECORD.**--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed. For wells equipped with recorders, daily values tables are published for the instantaneous water-level observation at noon. The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level. A hydrograph for a selected period of record follows each water-level table.

**Records of Ground-Water Quality**

Records of ground-water quality in this type of report differ from other types of records in that for most sampling sites they consist of only one set of measurements for the water year. The quality of ground water ordinarily changes only slowly; therefore, for most general purposes one annual sampling, or only a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring for trends in nitrate concentration. In the special cases where the quality of ground water may change more rapidly, more frequent measurements are made to identify the nature of the changes.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1992

### Data Collection and Computation

The records of ground-water quality in this report were obtained mostly as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some counties but none are presented for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years.

Most methods for collecting and analyzing water samples are described in the "U.S. Geological Survey Techniques of Water-Resources Investigations" manuals listed on a following page. The values reported in this type of report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. All samples are obtained by trained personnel. The wells sampled are pumped long enough to assure that the water collected comes directly from the aquifer and has not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

### Data Presentation

The records of ground-water quality, when available, are published in a section titled QUALITY OF GROUND WATER immediately following the ground-water level records. Data for quality of ground water are listed alphabetically by County, and are identified by well number. The prime identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

### ACCESS TO WATSTORE DATA

The U.S. Geological Survey is the principal Federal water-data agency and, as such, collects and disseminates about 70 percent of the water data currently being used by numerous State, local, private, and other Federal agencies to develop and manage our water resources. As part of the U.S. Geological Survey's program of releasing water data to the public, a large-scale computerized system has been developed for the storage and retrieval of water data collected through its activities. The National Water-Data Storage and Retrieval System (WATSTORE) was established in 1972 to provide an effective and efficient means for the processing and maintenance of water data collected through the activities of the U.S. Geological Survey and to facilitate release of the data to the public. A variety of useful products, ranging from data tables to complex statistical analyses such as Log Pearson Type III, can be produced using WATSTORE. The system resides on the central computer facilities of the U.S. Geological Survey at its National Center in Reston, Virginia, and consists of related files and data bases.

- \* Station Header File - Contains descriptive information on over 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.
- \* Daily Values Files - Contains over 220 million daily values of streamflow, stages, reservoir contents, water temperatures, specific conductances, sediment concentrations, sediment discharges, and ground-water level.
- \* Peak Flow File - Contains approximately 500,000 maximum (peak) streamflow and gage-height values at surface-water sites.
- \* Water-Quality Data - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radio-chemicals characteristics of both surface and ground water.
- \* Ground-Water Site Inventory Data Base - Contains inventory data for over 900,000 wells, springs, and other sources of ground water. The data includes site location, geohydrologic characteristics, well-construction history, and one-time field measurements such as water temperature.

**WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1992**

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requestor will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey  
National Water Data Exchange  
421 USGS National Center  
Reston, Virginia 22092

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk; and, as noted in the introduction, on CD-ROM discs. Beginning with the 1990 water year, all water-data reports will also be available on Compact Disc-Read Only Memory (CD-ROM). All data report published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division's offices. (See address on the back of the title page. A limited number of CD-ROM discs will be available for sale by the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, Colorado 80225.

**DEFINITION OF TERMS**

Terms related to streamflow, water-quality, and other hydrologic data as used in this report, are defined below. See also the table for converting inch- pound units to the International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present a stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C  $\pm$  1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C  $\pm$  0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1992

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as Gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at  $35^{\circ}\text{C} \pm 1.0^{\circ}\text{C}$  on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of  $500^{\circ}\text{C}$  for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter ( $\text{g}/\text{m}^3$ ), and periphton and benthic organisms in grams per square meter ( $\text{g}/\text{m}^2$ ).

Dry mass refers to the mass of residue present after drying in an oven at  $105^{\circ}\text{C}$  for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and the ash mass and represents the actual matter. The organic mass is expressed in the same units as for ash and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1992

Cubic foot per second (ft<sup>3</sup>/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic foot per second-day (ft<sup>3</sup>/s/day) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Instantaneous discharge is the discharge at a particular instant of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

Dissolved refers to that material in a representative water sample which passes through a 0.45 um membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculations of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$d = \frac{s}{\sum \frac{n_i}{n} \log_2 \frac{n_i}{n}}$$

Where "i" is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

## WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1992

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Ground-water station is a well at which observations of ground-water level are made, either continuously by recorder, or periodically by hand. In addition, various chemical or physical parameters may be obtained, usually on a periodic basis.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ( $\text{CaCO}_3$ ).

Hydrologic Bench-Mark Network is a network in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram (ug/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture. Conversion of chemical concentrations in Mg/L to milliequivalents per liter can be done by using the factors in table 5.

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Table 5. Factors for conversion of chemical constituents in milligrams per liter to milliequivalents per liter.

<u>Ion</u>	<u>Multiply by</u>	<u>Ion</u>	<u>Multiply by</u>
Aluminum (Al+3)*.....	0.11119	Iodide (I-1).....	0.00788
Ammonia as NH <sub>4</sub> +1.....	.05544	Iron (Fe+3).....	.05372
Barium (Ba+2).....	.01456	Lead (Pb+2).....	.00965
Bicarbonate (HCO <sub>3</sub> -1)....	.01639	Lithium (Li+1).....	.14411
Bromide (Br-1).....	.01251	Magnesium (Mg+2).....	.08226
Calcium (Ca+2).....	.04990	Manganese (Mn+2)*....	.03640
Carbonate (CO <sub>3</sub> -2).....	.03333	Nickel (Ni+2).....	.03406
Chloride (Cl-1).....	.02821	Nitrate (NO <sub>3</sub> -1).....	.01613
Chromium (Cr+6)*.....	.11539	Nitrite (NO <sub>2</sub> -1).....	.02174
Cobalt (Co+2)*.....	.03394	Phosphate (PO <sub>4</sub> -3)....	.03159
Copper (Cu+2)*.....	.03148	Potassium (K+1).....	.02557
Cyanide (CN-1).....	.03844	Sodium (Na+1).....	.04350
Fluoride (F-1).....	.05264	Strontium (Sr+2).....	.02283
Hydrogen (H+1).....	.99209	Sulfate (SO <sub>4</sub> -2).....	.02082
Hydroxide (OH-1).....	.05880	Zinc (Zn+2)*.....	.03060

\*Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

National Trends Network (NTN) is a network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per unit area habitat, usually square meters (m<sup>2</sup>), acres, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.



Particle-size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

<u>Classification</u>	<u>Size (mm)</u>	<u>Method of analysis</u>
Clay.....	0.00024 - 0.004	Sedimentation
Silt.....	.004 - .062	Sedimentation
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel....	2.0 - 64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Picocurie (PC, pCi) is one trillionth ( $1 \times 10^{-12}$ ) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields  $3.7 \times 10^{10}$  radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/(m<sup>2</sup>.time)] for periphyton and macrophytes and [mg C/(m<sup>3</sup>.time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mgO / (m<sup>2</sup>.time)] for periphyton and macrophytes and [mgO / (m<sup>3</sup>.time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

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Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentrations (mg/L)  $\times$  discharge ( $\text{ft}^3/\text{s}$ )  $\times$  0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow (7Q10) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electric current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is that part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of representative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom.....Animal  
Phylum.....Arthropoda  
Class.....Insecta  
Order.....Ephemeroptera  
Family.....Ephemeridae  
Genus.....Hexagenia  
Species.....Hexagenia limbata

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table heading and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

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Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses, because different digestion procedures are likely to produce different analytical results.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

Water year in Geological Survey reports dealing with surface water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1980, is called the "1980 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Books and Open-File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

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- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
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- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.
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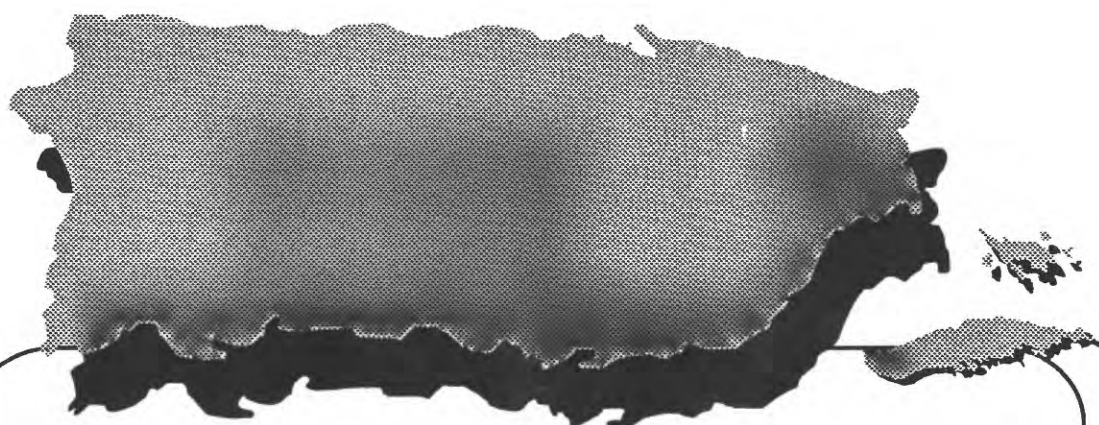
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- 3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 41 pages.
- 3-A13. *Computation of continuous records of streamflow*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.
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- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
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- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
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- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
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- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
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**Surface and Quality-of-Water  
Records  
for Puerto Rico**

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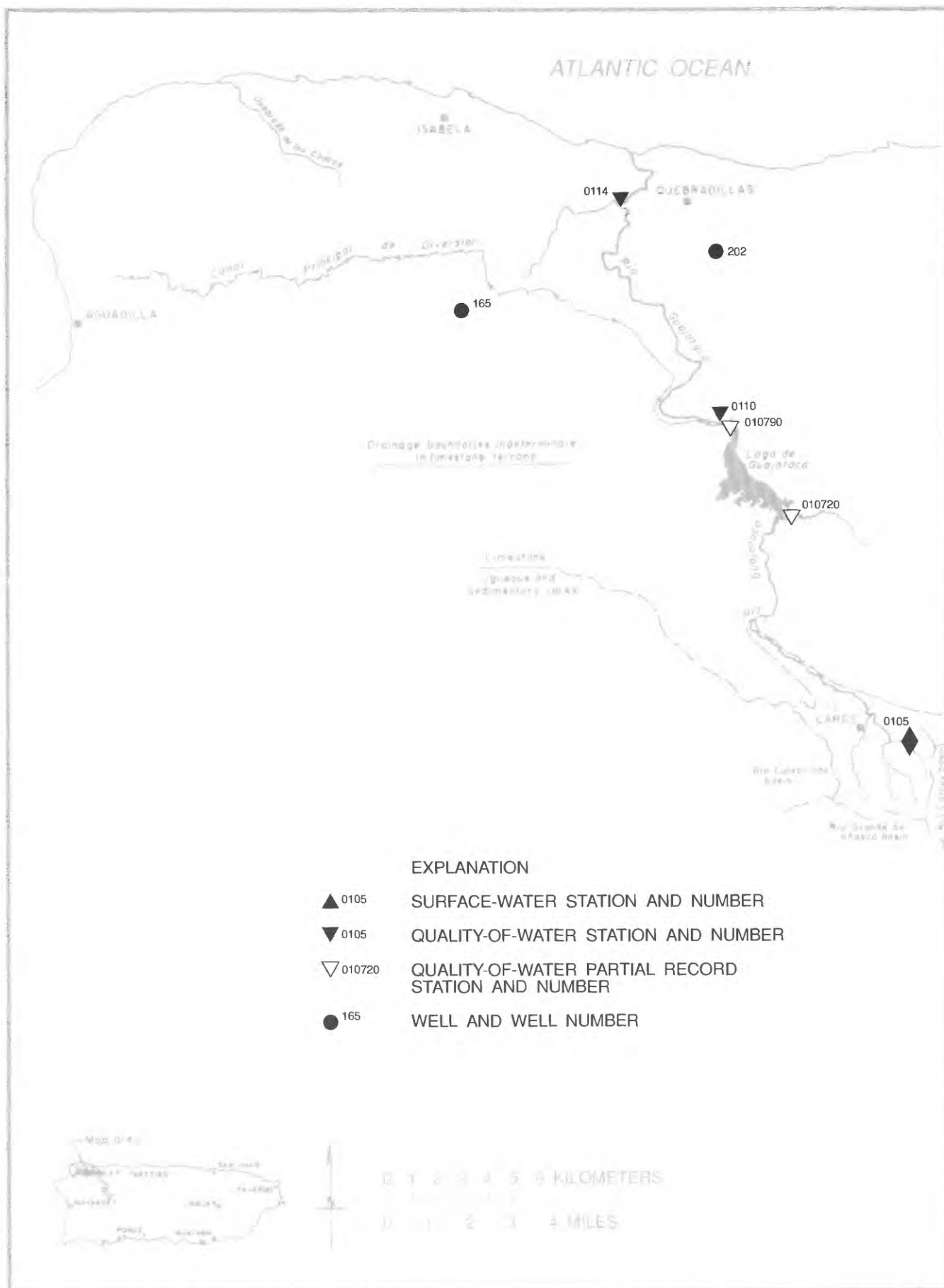


Figure 13.-Río Guajataca basin.

## RIO GUAJATACA BASIN

50010500 RIO GUAJATACA AT LARES, PR

LOCATION.--Lat 18°18'01", long 66°52'24", Hydrologic Unit 21010001 at bridge on Highway 111, 0.1 mi (0.2 km) upstream from Quebrada Anón, and 0.4 mi (0.6 km) east of Lares.

DRAINAGE AREA.--3.16 mi<sup>2</sup> (8.18 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to February 1962 (annual low-flow measurements only), January 1963 to April 1969 (monthly measurements only), May 1969 to December 1970 (February to May 1971 and March 1974 to November 1989, monthly measurements only), December 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 935 ft (285 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. Small diversion above station for sewage treatment plant; effluent re-enters stream below station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	23	3.7	e.85	e1.0	e.78	e1.1	e1.5	e2.8	e2.0	e2.3	e18
2	12	17	2.8	e.82	e1.1	e.77	e.92	e1.2	e2.1	e2.5	e2.0	e16
3	11	14	2.1	e.81	e1.1	e.76	e.86	e1.0	e1.7	e2.6	e1.8	e15
4	9.6	12	1.8	e.80	e1.1	e.74	e.86	e1.0	e1.6	e2.3	e1.8	7.1
5	9.0	12	1.9	e1.0	e1.0	e.80	e.80	e1.0	e4.2	e2.0	e6.0	5.6
6	8.6	11	1.8	e2.4	e1.0	e1.4	e.98	e.93	e5.8	e1.9	e5.4	7.1
7	8.1	10	1.7	e1.0	e.96	e2.0	e.88	e.91	e13	e1.9	e3.2	5.9
8	49	9.4	1.6	e.83	e.93	e.86	e1.0	e.84	e5.6	e2.1	e2.4	19
9	14	9.0	1.8	e.81	e.89	e.74	e1.8	e.94	e4.8	e1.9	e2.3	8.1
10	12	9.1	e1.5	e.82	e.90	e1.2	e3.0	e2.8	e3.7	e1.8	e2.1	14
11	9.4	8.2	e1.4	e1.3	e.89	e.72	e2.2	e9.8	e3.5	e2.5	e1.9	8.5
12	9.3	7.7	e1.3	e1.1	e.90	e.66	e1.6	e4.5	e3.5	e1.9	e2.8	5.7
13	26	7.7	e1.2	e1.0	e.90	e.66	e1.3	e2.8	e3.3	e1.7	e5.2	5.1
14	11	7.2	e1.2	e.96	e.90	e.64	e1.2	e2.1	e3.0	e1.6	e2.7	4.9
15	9.1	7.2	e1.1	e.94	e.94	e.64	e2.0	e1.9	e2.8	e1.5	e2.2	4.4
16	9.2	5.6	e1.1	e1.0	e.90	e.76	e3.9	e2.3	e2.7	e1.5	e2.1	6.3
17	7.8	5.6	e1.0	e1.0	e.94	e.81	e3.0	e2.1	e2.7	e4.2	e2.0	4.8
18	44	5.2	e1.0	e1.3	e.91	e.69	e6.2	e6.4	e2.5	e3.5	e2.0	6.9
19	91	e4.4	e.96	e1.0	e1.0	e.68	e3.2	e3.6	e2.4	e2.6	e2.1	6.2
20	32	e4.2	e1.7	e1.1	e1.0	e.64	e2.2	e7.0	e2.3	e3.6	e2.2	16
21	18	e4.0	e1.5	e1.0	e.96	e.64	e1.8	e4.6	e2.3	e3.2	e2.5	4.9
22	17	e3.8	e.97	e1.0	e.90	e.64	e1.4	e13	e2.2	e2.0	e4.0	5.5
23	13	e3.5	e.95	e.98	e.88	e.61	e1.3	e10	e2.3	e1.7	e4.8	11
24	12	e3.3	e.91	e.94	e.88	e2.0	e1.3	e5.8	e2.1	e2.2	e10	5.6
25	18	e3.1	e.89	e1.0	e.88	e2.3	e1.2	e6.6	e2.1	e1.9	e9.4	6.6
26	12	e3.3	e.87	e1.0	e.87	e1.0	e1.1	e3.1	e2.1	e2.2	e7.0	4.9
27	11	e2.8	e.84	e.96	e.84	e2.5	e1.0	e2.6	e2.2	e3.4	e4.8	4.1
28	11	2.6	e.84	e.97	e.83	e15	e.96	e4.6	e2.1	e2.1	e4.0	3.9
29	10	2.5	e.84	e.97	e.80	e5.0	e.94	e4.3	e2.0	e1.6	e3.7	3.5
30	18	2.6	e.84	e.96	---	e2.5	e1.0	e6.0	e1.9	e3.4	e3.6	24
31	99	---	e.82	e.97	---	e1.5	---	e4.5	---	e3.2	e8.0	---
TOTAL	632.1	221.0	42.93	31.59	27.10	50.64	51.00	119.72	95.3	72.5	116.3	258.6
MEAN	20.4	7.37	1.38	1.02	.93	1.63	1.70	3.86	3.18	2.34	3.75	8.62
MAX	99	23	3.7	2.4	1.1	15	6.2	13	13	4.2	10	24
MIN	7.8	2.5	.82	.80	.80	.61	.80	.84	1.6	1.5	1.8	3.5
AC-FT	1250	438	85	63	54	100	101	237	189	144	231	513
CFSM	6.45	2.33	.44	.32	.30	.52	.54	1.22	1.01	.74	1.19	2.73
INF.	7.44	2.60	.51	.37	.32	.60	.60	1.41	1.12	.85	1.37	3.04

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1992, BY WATER YEAR (WY)

	MEAN	19.9	10.6	3.78	2.73	2.31	2.50	3.63	9.13	6.98	4.47	5.34	11.6
MAX	33.7	16.7	7.31	6.83	5.37	6.38	6.34	12.3	9.73	9.85	9.88	15.7	
(WY)	1991	1971	1971	1971	1971	1971	1971	1991	1970	1969	1991	1990	
MIN	11.9	6.51	1.35	.66	.93	1.01	1.31	3.86	3.18	2.03	3.34	8.62	
(WY)	1971	1991	1991	1991	1992	1970	1970	1992	1992	1990	1970	1992	

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1969 - 1992
ANNUAL TOTAL	2551.94	1718.78	
ANNUAL MEAN	6.99	4.70	6.33
HIGHEST ANNUAL MEAN			8.05
LOWEST ANNUAL MEAN			4.70
HIGHEST DAILY MEAN	104 May 20	99 Oct 31	216 Oct 7 1990
LOWEST DAILY MEAN	.47 Jan 13	.61 Mar 23	.47 Jan 13 1991
ANNUAL SEVEN-DAY MINIMUM	.51 Jan 9	.67 Mar 17	.51 Jan 9 1991
INSTANTANEOUS PEAK FLOW		2870 Oct 19	5300 Oct 7 1990
INSTANTANEOUS PEAK STAGE		17.31 Oct 19	21.30 Oct 7 1990
ANNUAL RUNOFF (AC-FT)	5060	3410	4580
ANNUAL RUNOFF (CFSM)	2.21	1.49	2.00
ANNUAL RUNOFF (INCHES)	30.04	20.23	27.20
10 PERCENT EXCEEDS	15	11	14
50 PERCENT EXCEEDS	3.1	2.1	3.7
90 PERCENT EXCEEDS	.83	.86	.92

## RIO GUAJATACA BASIN

50010500 RIO GUAJATACA AT LARES, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'01", long 66°52'24", at bridge on Highway 111 (km 32.9), 0.1 mi (0.2 km) upstream from Quebrada Anón, and 0.4 mi (0.6 km) northeast of Lares plaza.

DRAINAGE AREA.--3.16 mi<sup>2</sup> (8.18 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958-71, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
OCT 1991											
22...	0855	7.6	216	7.4	21.0	9.0	7.6	87	<10	K11000	9300
DEC 17...	1320	0.98	241	7.9	21.5	3.3	7.5	86	<10	K90	5300
FEB 1992											
20...	1510	1.1	247	7.9	23.5	1.4	8.7	103	<10	490	770
APR 09...	0805	1.4	268	6.9	21.5	1.4	8.1	99	<10	K13000	4300
JUL 02...	1010	1.9	235	7.8	24.0	0.50	8.0	94	<10	700	470
AUG 27...	0935	5.9	252	6.9	25.5	4.7	5.4	68	<10	630	4100

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991											
22...	78	3	23	5.1	9.5	0.5	2.5	77	<0.5	6.4	11
DEC 17...	--	--	--	--	--	--	--	84	--	--	--
FEB 1992											
20...	--	--	--	--	--	--	--	100	--	--	--
APR 09...	100	2	32	6.0	12	0.5	3.0	99	<0.5	14	17
JUL 02...	--	--	--	--	--	--	--	110	--	--	--
AUG 27...	110	0	33	5.8	11	0.5	3.0	110	--	13	13

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
22...	0.20	28	132	2.69	<1	2.29	0.010	2.30	0.050	0.15
DEC 17...	--	--	--	--	1	1.67	0.030	1.70	0.020	--
FEB 1992										
20...	--	--	--	--	6	--	<0.010	0.870	0.020	--
APR 09...	0.20	27	171	0.66	13	0.980	0.020	1.00	0.040	0.16
JUL 02...	--	--	--	--	<1	1.79	0.010	1.80	0.020	0.28
AUG 27...	<0.10	24	168	2.67	1	1.69	0.010	1.70	0.040	--

K = non-ideal count

## RIO GUAJATACA BASIN

50010500 RIO GUAJATACA AT LARES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
22...	0.20	2.5	11	0.070	<1	<100	30	<1	<1	<10
DEC 17...	<0.20	--	--	0.130	--	--	--	--	--	--
FEB 1992										
20...	<0.20	--	--	0.120	--	--	--	--	--	--
APR 09...	0.20	1.2	5.3	0.040	2	<100	30	<1	<1	<10
JUL 02...	0.30	2.1	9.3	0.060	--	--	--	--	--	--
AUG 27...	<0.20	--	--	0.080	--	--	--	--	--	--

[illegible]

## RIO GUAJATACA BASIN

50011000 CANAL PRINCIPAL DE DIVERSIONES AT LAGO DE GUAJATACA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'02", long 66°55'27", off Highway 476 at Lago Guajataca outlet, 3.0 mi (4.8 km) southwest of Segunda Unidad Baldorioty de Castro, and 5.3 mi (8.5 km) south of Quebradillas Plaza.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1958-64, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)
OCT 1991											
22...	1345	E105	312	7.3	25.5	3.9	2.3	12	10	20	K13
DEC 17...	1545	E100	300	7.4	25.0	1.2	2.9	36	11	K5	K1
FEB 1992											
20...	1000	E70	318	7.6	24.5	1.2	2.7	32	<10	K2	K11
APR 10...	1045	E50	282	6.8	25.5	1.2	5.5	67	17	29	20
JUL 07...	1050	E50	310	6.9	25.0	1.5	1.7	28	12	10	10
AUG 27...	1230	E75	318	6.7	27.5	0.2	2.6	39	<10	330	2500

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB TOT (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991											
22...	150	4	54	3.7	7.4	0.3	2.6	140	<0.5	13	12
DEC 17...	--	--	--	--	--	--	--	130	--	--	--
FEB 1992											
20...	--	--	--	--	--	--	--	130	--	--	--
APR 10...	130	5	46	3.6	5.9	0.2	2.1	110	<0.5	7.6	15
JUL 07...	--	--	--	--	--	--	--	150	--	--	--
AUG 27...	150	10	53	3.4	5.9	0.2	2.3	160	--	8.0	9.5

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
22...	0.20	7.5	184	--	2	--	<0.010	<0.050	0.180	0.32
DEC 17...	--	--	--	--	1	0.068	0.010	0.078	0.030	0.27
FEB 1992										
20...	--	--	--	--	<1	--	<0.010	<0.050	0.020	0.38
APR 10...	0.20	4.6	151	--	6	--	0.010	<0.050	0.160	0.24
JUL 07...	--	--	--	--	<1	--	0.030	<0.050	0.130	0.17
AUG 27...	<0.10	5.6	176	--	2	--	<0.010	<0.050	0.320	0.28

E = estimate

K = non-ideal count

# RIO GUAJATACA BASIN

50011000 CANAL PRINCIPAL DE DIVERSIONES AT LAGO DE GUAJATACA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991 22...	0.50	--	--	0.020	3	<100	30	<1	<1	<10
DEC 17...	0.30	0.38	1.7	<0.010	--	--	--	--	--	--
FEB 1992 20...	0.40	--	--	0.070	--	--	--	--	--	--
APR 10...	0.40	--	--	<0.010	1	<100	30	<1	<1	<10
JUL 07...	0.30	--	--	<0.010	--	--	--	--	--	--
AUG 27...	0.60	--	--	0.020	--	--	--	--	--	--

[illegible]



## RIO GUAJATACA BASIN

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°28'31", long 66°57'46", Hydrologic Unit 21010002, on left bank at ford 1.7 mi (2.7 km) upstream from bridge on highway 2, 1.6 mi (2.6 km) west of Quebradillas plaza, 2.1 mi (3.4 km) upstream from Atlantic Ocean, and 6.6 mi (10.6 km) downstream from Lago Guajataca.

DRAINAGE AREA.--Indeterminate

PERIOD OF RECORD.--Water years 1969 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, KP AGAR (COLS. PER 100 ML)
OCT 1991											
22...	1630	226	318	8.2	26.0	15	4.1	47	20	K840	880
JAN 1992											
10...	1230	6.6	556	7.6	24.5	0.70	5.9	68	<10	40	110
FEB											
20...	0800	9.3	612	7.5	24.0	0.50	4.5	49	<10	31	54
APR											
10...	0905	14	399	6.9	24.5	1.4	5.4	63	<10	2100	3200
JUL											
20...	1030	33	395	7.4	25.0	2.1	6.3	72	13	410	410
SEP											
02...	1200	250	307	7.9	27.0	3.5	6.2	70	<10	K270	670

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB TOT (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991											
22...	160	8	57	3.5	6.1	0.2	1.9	150	<0.5	13	11
JAN 1992											
10...	--	--	--	--	--	--	--	210	--	--	--
FEB											
20...	--	--	--	--	--	--	--	230	--	--	--
APR											
10...	180	19	64	5.9	12	0.4	1.7	160	<0.5	8.5	26
JUL											
20...	--	--	--	--	--	--	--	180	--	--	--
SEP											
02...	150	8	56	3.5	5.4	0.2	1.7	150	--	9.2	11

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
22...	0.20	7.4	190	116	<1	0.190	0.020	0.210	0.070	0.83
JAN 1992										
10...	--	--	--	--	7	1.98	0.020	2.00	0.030	--
FEB										
20...	--	--	--	--	4	2.68	0.020	2.70	0.020	--
APR										
10...	0.20	5.9	220	8.38	7	1.08	0.020	1.10	0.040	--
JUL										
20...	--	--	--	--	28	--	<0.010	<0.050	0.020	0.38
SEP										
02...	0.10	6.0	181	122	<1	0.280	0.040	0.320	0.020	0.18

K = non-ideal count

## RIO GUAJATACA BASIN

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS. PR--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991 22...	0.90	1.1	4.9	0.040	3	<100	30	<1	1	10
JAN 1992 10...	<0.20	--	--	<0.010	--	--	--	--	--	--
FEB 20...	<0.20	--	--	0.020	--	--	--	--	--	--
APR 10...	<0.20	--	--	<0.010	<1	<100	30	<1	<1	<10
JUL 20...	0.40	--	--	0.020	--	--	--	--	--	--
SEP 02...	0.20	0.52	2.3	0.020	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 22... JAN 10... FEB 20... APR 10... JUL 20... SEP 02...	450 -- -- 140 -- --	18 -- -- <1 -- --	60 -- -- 40 -- --	<0.10 -- -- <0.10 -- --	<1 -- -- <1 -- --	<1 -- -- <1 -- --	30 -- -- <10 -- --	<0.010 -- -- <0.010 -- --	<1 -- -- 3 -- --	0.03 -- -- 0.03 -- --

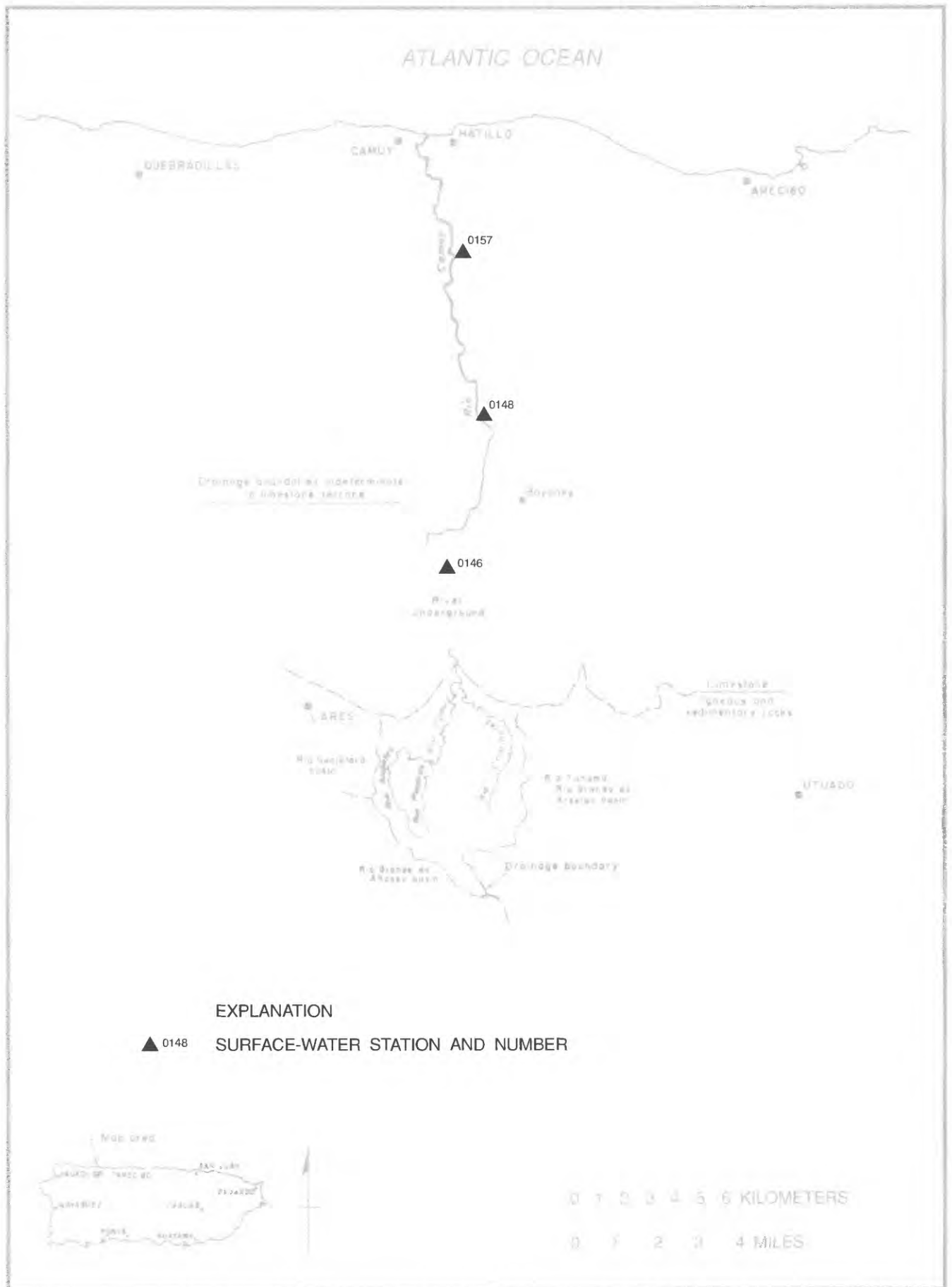


Figure 14.--Río Camuy basin.

### RIO CAMUY BASIN

50014600 RIO CAMUY AT TRES PUEBLOS SINKHOLE, PR

LOCATION.--Lat 18°20'42", long 66°49'29", Hydrologic Unit 21010002, at Parque de las Cavernas del Río Camuy, 1.8 mi (2.9 km) southeast from Escuela Segunda Unidad de Santiago Palmer, 4.7 mi (7.6 km) west from Observatorio de Arecibo and 4.8 mi (7.7 km) northeast from Plaza de Lares.

DRAINAGE AREA.--Indeterminate.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 612.21 ft (186.602 m), above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	160	38	28	21	14	41	33	114	37	58	73
2	55	95	37	27	20	15	36	38	88	37	46	57
3	49	77	37	27	21	15	33	34	76	37	38	44
4	47	71	36	27	21	15	31	32	69	39	36	42
5	46	66	36	27	20	15	30	31	65	38	38	40
6	45	62	35	67	20	15	30	31	115	36	111	41
7	44	60	35	35	20	34	33	30	147	35	96	58
8	141	59	34	30	19	32	33	30	215	36	65	64
9	115	57	34	29	18	21	49	29	130	37	53	53
10	77	55	33	28	18	20	50	31	90	35	50	51
11	59	54	33	33	18	28	47	82	79	41	46	49
12	54	e53	32	39	18	19	38	143	70	38	44	44
13	70	e52	32	30	18	18	38	79	64	35	74	41
14	70	e50	e32	28	17	17	34	58	59	33	63	40
15	54	50	e31	26	17	17	32	47	57	33	46	40
16	51	50	30	26	17	17	59	49	55	32	42	41
17	47	49	30	25	17	19	71	49	52	31	40	42
18	86	48	30	24	16	20	56	58	51	31	41	40
19	116	47	30	24	16	18	85	147	49	32	39	39
20	166	46	33	24	16	18	62	104	47	49	46	70
21	161	45	40	23	16	18	46	128	46	44	46	47
22	117	44	32	23	16	17	41	109	45	41	44	42
23	89	43	31	23	16	17	39	176	44	34	45	57
24	79	43	30	23	16	17	37	166	43	36	69	59
25	95	42	29	23	16	64	36	129	42	42	125	49
26	89	41	29	23	15	62	35	114	41	34	103	45
27	71	41	29	22	15	30	34	88	40	52	56	42
28	79	40	29	22	15	72	33	86	40	61	46	39
29	76	39	28	21	14	233	32	123	39	38	44	38
30	74	39	28	21	---	101	32	114	38	35	41	64
31	274	---	28	21	---	49	---	134	---	70	39	---
TOTAL	2652	1678	1001	849	507	1067	1253	2502	2110	1209	1730	1451
MEAN	85.5	55.9	32.3	27.4	17.5	34.4	41.8	80.7	70.3	39.0	55.8	48.4
MAX	274	160	40	67	21	233	85	176	215	70	125	73
MIN	44	39	28	21	14	14	30	29	38	31	36	38
AC-FT	5260	3330	1990	1680	1010	2120	2490	4960	4190	2400	3430	2880

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1992, BY WATER YEAR (WY)

MEAN	98.8	53.3	31.1	24.5	22.2	26.5	43.3	77.5	47.1	34.2	50.2	61.3
MAX	112	55.9	32.3	27.4	27.0	34.4	44.9	80.7	70.3	43.1	66.0	70.9
(WY)	1991	1992	1992	1992	1991	1992	1991	1992	1992	1991	1991	1990
MIN	85.5	50.7	29.8	21.6	17.5	18.5	41.8	74.2	32.1	20.7	28.8	48.4
(WY)	1992	1991	1991	1991	1992	1991	1992	1991	1991	1990	1990	1992

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1990 - 1992
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ANNUAL TOTAL	17258		18009			
ANNUAL MEAN	47.3		49.2		49.1	
HIGHEST ANNUAL MEAN					49.2	1992
LOWEST ANNUAL MEAN					48.9	1991
HIGHEST DAILY MEAN	274	Oct 31	274	Oct 31	274	Oct 31 1991
LOWEST DAILY MEAN	15	Mar 16	14	Feb 29	14	Feb 29 1992
ANNUAL SEVEN-DAY MINIMUM	16	Mar 13	15	Feb 26	15	Feb 26 1992
INSTANTANEOUS PEAK FLOW			1030	Oct 31	1030	Oct 31 1991
INSTANTANEOUS PEAK STAGE			12.42	Oct 31	12.42	Oct 31 1991
INSTANTANEOUS LOW FLOW			14	Feb 28	14	Feb 28 1992
10 PERCENT EXCEEDS	88		88		89	
50 PERCENT EXCEEDS	36		40		37	
90 PERCENT EXCEEDS	20		18		19	

## RIO CAMUY BASIN

50014800 RIO CAMUY NEAR BAYANEY, PR

LOCATION.--Lat 18°23'48", long 66°49'04", Hydrologic Unit 21010002, on left bank at Highway 488, 1.4 mi (2.2 km) southeast of school at Santiago, 0.9 mi (1.4 km) northwest from Escuela Manuel A. Rivera at Bayaney and 9.1 mi (14.6 km) upstream from Atlantic Ocean.

DRAINAGE AREA.--Indeterminate.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 341 ft (104 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	458	71	39	33	26	65	36	261	e66	112	126
2	96	208	70	39	33	25	47	52	193	e67	80	111
3	83	160	68	39	36	25	40	42	155	e86	68	80
4	80	146	68	39	36	25	35	36	133	e89	63	74
5	77	134	65	39	35	25	35	34	132	e79	61	71
6	73	126	64	124	34	25	33	35	217	e70	202	70
7	71	149	63	71	33	52	40	32	306	e66	187	98
8	314	133	61	48	30	86	38	31	e520	e66	110	158
9	303	113	61	45	29	35	71	30	e295	73	82	119
10	195	107	60	44	28	30	85	31	e188	66	77	93
11	122	104	58	46	28	48	104	100	e166	65	71	93
12	98	99	56	73	28	30	75	304	e131	85	64	81
13	124	96	55	54	28	27	54	163	e120	66	95	75
14	129	93	55	45	28	27	45	99	e115	59	173	73
15	92	90	55	41	28	26	40	74	e107	56	90	72
16	84	89	53	39	29	26	77	68	e96	54	74	77
17	80	87	53	38	28	31	133	79	e93	53	72	77
18	157	84	52	37	28	33	102	78	e91	139	71	75
19	235	81	51	36	28	28	215	319	e84	101	69	79
20	395	78	55	36	29	27	110	224	e83	92	71	191
21	356	77	77	36	29	26	75	329	e80	123	73	104
22	234	75	54	35	28	26	59	258	e78	109	81	86
23	163	75	46	35	26	26	49	549	e76	70	127	153
24	137	77	45	35	26	25	45	465	e77	60	158	145
25	170	77	43	34	26	97	43	311	e73	77	254	109
26	173	77	42	35	26	134	40	336	e72	64	229	102
27	128	77	41	35	26	49	38	210	e71	75	121	95
28	152	76	40	34	26	140	37	179	e73	116	91	90
29	150	75	40	34	26	541	35	257	e71	63	82	81
30	141	73	40	33	---	239	34	253	e68	55	74	118
31	620	---	39	34	---	87	---	305	---	117	71	---
TOTAL	5324	3394	1701	1352	848	2047	1899	5319	4225	2427	3253	2976
MEAN	172	113	54.9	43.6	29.2	66.0	63.3	172	141	78.3	105	99.2
MAX	620	458	77	124	36	541	215	549	520	139	254	191
MIN	71	73	39	33	26	25	33	30	68	53	61	70

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1992, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	220	127	67.4	48.5	46.7	48.2	106	196	109
MAX	427	244	97.4	80.9	78.3	66.0	202	624	141
(WY)	1986	1986	1988	1988	1987	1992	1986	1986	1992
MIN	81.6	74.9	49.7	33.1	29.2	35.7	61.4	43.2	79.9
(WY)	1988	1989	1989	1991	1992	1991	1990	1989	1989

## SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1984 - 1992

ANNUAL TOTAL	35824		34765		
ANNUAL MEAN	98.1		95.0		
HIGHEST ANNUAL MEAN					108
LOWEST ANNUAL MEAN					179
HIGHEST DAILY MEAN	620	Oct 31	620	Oct 31	3820
LOWEST DAILY MEAN	26	Feb 2	25	Mar 2	25
ANNUAL SEVEN-DAY MINIMUM	27	Jan 28	25	Feb 29	25
INSTANTANEOUS PEAK FLOW			2500	Oct 31	6450
INSTANTANEOUS PEAK STAGE			12.61	Oct 31	17.66
INSTANTANEOUS LOW FLOW			25	Mar 2	25
10 PERCENT EXCEEDS	197		189		210
50 PERCENT EXCEEDS	74		73		70
90 PERCENT EXCEEDS	31		29		35

## RIO CAMUY BASIN

50015700 RIO CAMUY NEAR HATILLO, PR

LOCATION.--Lat 18°27'44", long 66°49'56", Hydrologic Unit 21010002, 1.8 mi (2.9 km) southwest of Hatillo plaza, and 1.8 mi (2.9 km) southeast of Camuy plaza, 1.2 mi (1.9 km) south of Planta de Purificación, and 3.3 mi (5.5 km) upstream from Atlantic Ocean.

DRAINAGE AREA.--Indeterminate.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 13 ft (4 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	1220	59	44	37	31	77	41	569	e70	180	124
2	119	284	58	44	37	31	57	60	390	e71	87	181
3	96	176	57	42	38	31	48	48	306	e91	68	88
4	89	151	57	42	41	31	43	41	266	e94	63	82
5	86	135	56	43	38	31	40	38	371	e86	64	76
6	81	124	55	147	37	31	38	38	274	e76	133	75
7	78	147	54	80	37	35	45	37	578	e70	390	91
8	302	168	54	52	36	108	44	35	795	e70	126	223
9	655	113	53	47	35	41	77	34	645	e78	79	177
10	391	105	52	46	34	36	89	34	280	e71	73	77
11	207	102	51	45	34	49	127	59	251	e69	66	105
12	155	97	50	75	34	36	111	454	173	e91	62	76
13	148	92	49	59	34	33	62	310	144	e70	58	67
14	188	88	51	47	34	33	49	112	130	e64	290	65
15	113	85	50	43	34	33	43	77	e110	e60	128	64
16	99	85	49	42	33	32	42	73	e100	e58	79	76
17	92	83	48	41	33	33	171	95	e99	e56	73	71
18	161	81	48	40	33	40	143	71	e97	e150	71	67
19	270	78	47	40	33	36	162	354	e91	e110	69	64
20	579	75	50	40	32	34	153	508	e89	e98	75	326
21	615	74	80	39	32	34	78	464	e86	e130	76	133
22	416	72	56	39	32	33	64	568	e83	e120	82	84
23	305	71	49	39	32	32	53	1250	e82	e74	138	164
24	196	69	47	39	32	32	49	1090	e81	e62	365	223
25	241	68	46	38	32	50	46	636	e78	e82	340	126
26	267	66	45	39	32	236	43	838	e76	e66	531	112
27	183	64	45	38	32	40	42	565	e76	e58	181	159
28	183	64	45	38	31	60	40	302	e78	176	127	157
29	262	62	45	38	31	688	39	425	e76	74	100	80
30	178	61	44	38	---	660	39	484	e72	63	88	101
31	634	---	44	38	---	102	---	508	---	107	83	---
TOTAL	7492	4160	1594	1482	990	2732	2114	9649	6546	2615	4345	3514
MEAN	242	139	51.4	47.8	34.1	88.1	70.5	311	218	84.4	140	117
MAX	655	1220	80	147	41	688	171	1250	795	176	531	326
MIN	78	61	44	38	31	31	38	34	72	56	58	64

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1992, BY WATER YEAR (WY)

MEAN	381	194	83.1	62.9	68.1	69.0	190	394	150	111	124	206
MAX	735	439	151	131	134	88.1	411	1586	218	161	180	376
(WY)	1986	1986	1988	1988	1987	1992	1986	1986	1992	1990	1989	1989
MIN	116	115	51.4	46.2	34.1	49.2	70.5	59.5	105	65.6	71.6	117
(WY)	1988	1989	1992	1989	1992	1988	1992	1989	1991	1984	1990	1992

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR			FOR 1992 WATER YEAR			WATER YEARS 1984 - 1992		
ANNUAL TOTAL	49447			47233			170		
ANNUAL MEAN	135			129			335		
HIGHEST ANNUAL MEAN							1986		
LOWEST ANNUAL MEAN							129		
HIGHEST DAILY MEAN	1600			1250			8150		
LOWEST DAILY MEAN	37			31			25		
ANNUAL SEVEN-DAY MINIMUM	38			31			30		
INSTANTANEOUS PEAK FLOW				4430			10700		
INSTANTANEOUS PEAK STAGE				18.16			24.75		
10 PERCENT EXCEEDS	288			303			321		
50 PERCENT EXCEEDS	75			72			82		
90 PERCENT EXCEEDS	42			34			42		

## RIO CAMUY BASIN

50015700 RIO CAMUY NEAR HATILLO, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS AUGUST 1984 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
FEB. 21	0848	32	320	21.5	SEP. 19	1250	114	180	28.0
AUG. 19	1404	69	220	26.0					

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Figure 15--Río Grande de Arecibo basin.

## RIO GRANDE DE ARECIBO BASIN

50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°10'54", long 66°44'12", at Highway 135 bridge, 1.0 mi (1.6 km) upstream from Lago Adjuntas, and 1.5 mi (2.4 km) northwest of Adjuntas plaza.

DRAINAGE AREA.--12.7 mi<sup>2</sup> (32.9 km<sup>2</sup>) this does not include 6.0 mi<sup>2</sup> (15.6 km<sup>2</sup>) above Lago Garzas.

PERIOD OF RECORD.--Water years 1969-74, 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 1991											
06...	1230	22	417	7.7	24.0	13	7.5	81	48	4100	9200
JAN 1992											
07...	1545	48	333	7.4	23.0	12	7.4	83	<10	K1300	3500
FEB											
27...	1030	11	335	7.7	21.0	0.50	8.5	100	16	250	5100
APR											
03...	1000	41	265	7.4	22.0	4.3	9.0	105	12	K1600	4700
JUN											
11...	1025	27	280	7.5	24.0	1.2	9.6	109	18	70	260
AUG											
21...	0950	18	515	7.4	23.5	1.1	6.2	70	16	4900	24000

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 1991											
06...	110	2	29	9.0	53	2	3.6	94	<0.5	9.3	86
JAN 1992											
07...	--	--	--	--	--	--	--	77	--	--	--
FEB											
27...	--	--	--	--	--	--	--	110	--	--	--
APR											
03...	98	2	26	8.0	15	0.7	3.5	100	<0.5	14	24
JUN											
11...	--	--	--	--	--	--	--	100	--	--	--
AUG											
21...	120	6	33	9.8	46	2	2.9	120	--	11	73

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
NOV 1991										
06...	0.10	29	275	16.2	10	1.12	0.080	1.20	0.170	1.0
JAN 1992										
07...	--	--	--	--	7	1.37	0.030	1.40	0.160	0.34
FEB										
27...	--	--	--	--	1	1.14	0.060	1.20	0.040	0.16
APR										
03...	0.10	23	174	19.0	1	1.08	0.020	1.10	0.110	0.09
JUN										
11...	--	--	--	--	3	0.740	0.050	0.790	0.020	--
AUG										
21...	0.20	27	273	13.3	8	0.650	0.080	0.730	0.070	0.33

K = non-ideal count

# RIO GRANDE DE ARECIBO BASIN

50020500 RIO GRANDE DE ARECIBO NR ADJUNTAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
NOV 1991 06...	1.2	2.4	11	0.220	1	<100	20	<1	<1	50
JAN 1992 07...	0.50	1.9	8.4	0.110	--	--	--	--	--	--
FEB 27...	0.20	1.4	6.2	0.170	--	--	--	--	--	--
APR 03...	0.20	1.3	5.8	0.080	<1	<100	<10	<1	<1	<10
JUN 11...	<0.20	--	--	0.080	--	--	--	--	--	--
AUG 21...	0.40	1.1	5.0	0.190	--	--	--	--	--	--

[illegible]

## RIO GRANDE DE ARECIBO BASIN

50025000 RIO GRANDE DE ARECIBO NEAR UTUADO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'11", long 66°41'59", at bridge near Highway 10 at km 56.4, 0.5 mi (0.8 km) downstream from Río de Caguana, and 2.5 mi (4.0 km) north of Utuado plaza.

DRAINAGE AREA.--66.0 mi<sup>2</sup> (170.9 km<sup>2</sup>) this excludes 6.0 mi<sup>2</sup> (15.5 km<sup>2</sup>) upstream from Lago Garzas to Río Guayanés in the Río Tallaboa basin.

PERIOD OF RECORD.--Water years 1959-74, 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)
OCT 1991											
30...	1140	158	141	7.7	24.5	250	7.5	84	40	K69000	30000
DEC 30...	1000	39	308	7.9	20.0	10	9.3	108	<10	K1000	310
FEB 1992											
27...	1140	35	310	8.0	22.5	2.1	8.5	96	<10	72000	3900
APR 15...	1055	55	291	7.7	26.5	5.0	8.0	100	12	K800	300
JUN 24...	0940	77	280	8.4	25.0	2.4	10.0	112	<10	K110	380
AUG 20...	1035	60	299	7.5	26.0	1.5	7.0	81	17	410	230

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991											
30...	66	0	18	5.2	9.7	0.5	3.0	55	<0.5	17	12
DEC 30...	--	--	--	--	--	--	--	100	--	--	--
FEB 1992											
27...	--	--	--	--	--	--	--	98	--	--	--
APR 15...	110	21	31	8.5	16	0.7	2.4	92	<0.5	21	18
JUN 24...	--	--	--	--	--	--	--	100	--	--	--
AUG 20...	110	13	30	8.4	16	0.7	2.3	98	--	20	20

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
30...	<0.10	18	116	49.3	348	1.15	0.050	1.20	0.110	0.79
DEC 30...	--	--	--	--	16	0.970	0.030	1.00	0.030	0.17
FEB 1992										
27...	--	--	--	--	1	1.12	0.080	1.20	0.240	0.26
APR 15...	<0.10	23	175	25.8	25	0.620	0.050	0.670	0.110	0.09
JUN 24...	--	--	--	--	10	0.940	0.050	0.990	0.080	0.12
AUG 20...	0.20	28	184	30	16	0.970	0.030	1.00	0.020	--

K = non-ideal count

## RIO GRANDE DE ARECIBO BASIN

50025000 RIO GRANDE DE ARECIBO NEAR UTUADO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO <sub>3</sub> )	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
30...	0.90	2.1	9.3	0.320	<1	200	50	<1	12	100
DEC 30...	0.20	1.2	5.3	0.180	--	--	--	--	--	--
FEB 1992										
27...	0.50	1.7	7.5	0.230	--	--	--	--	--	--
APR 15...	0.20	0.87	3.9	0.100	<1	<100	<10	<1	<1	20
JUN 24...	0.20	1.2	5.3	0.170	--	--	--	--	--	--
AUG 20...	<0.20	--	--	0.070	--	--	--	--	--	--

[illegible]

## RIO GRANDE DE ARECIBO BASIN

50025155 RIO SALIENTE AT COABEY NEAR JAYUYA, PR

LOCATION.--Lat 18°12'48", long 66°33'49", Hydrologic Unit 21010002, 2.0 mi (3.2 km) southeast of Jayuya, 1.4 mi (2.2 km) northeast of Hacienda Gripiñas.

DRAINAGE AREA.--9.25 mi<sup>2</sup> (23.96 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,706 ft (520 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	e16	7.5	e7.0	e13	e9.4	e26	e35	e150	e17	18	14
2	9.6	e15	7.3	e6.9	e13	e9.4	e20	e22	e74	e15	14	13
3	9.1	e13	7.4	e6.9	e12	e9.2	e12	e17	e50	e13	12	13
4	8.2	e11	8.7	e35	e12	e9.1	e10	e15	e42	e12	16	15
5	7.9	e10	8.9	e450	e15	e9.0	e15	e17	e37	e12	42	17
6	8.0	e11	8.7	e300	e32	e9.1	e26	e15	e34	e12	35	15
7	14	e13	7.7	e120	e32	e9.6	e24	e12	e32	e15	17	88
8	17	e15	6.7	e60	e30	e10	e56	e11	e31	e13	15	36
9	16	e13	6.6	e40	e21	e12	e45	e11	e30	e12	23	22
10	18	e12	6.6	e34	e17	e9.0	e19	e13	e38	e11	60	18
11	16	e11	6.5	e39	e15	e8.4	e14	e26	e30	e11	34	17
12	13	e11	6.3	e39	e14	e8.2	e11	e27	e26	e11	23	16
13	10	e10	6.3	e31	e16	e8.0	e12	e49	e24	e11	18	15
14	9.2	e10	6.3	e27	e16	e7.8	e25	e64	e23	e10	17	14
15	8.8	10	e6.3	e24	e14	e8.4	e72	e45	e23	e11	17	38
16	8.6	10	5.6	e25	e13	e10	e55	e96	e22	e10	16	21
17	8.1	9.4	6.0	e26	e12	e10	e77	e76	e22	e10	15	18
18	11	9.2	6.0	e21	e11	e7.6	e180	e123	e21	e9.8	14	15
19	12	8.8	5.8	e19	e11	e7.1	e135	e72	e20	e9.5	13	14
20	8.8	8.7	e19	e17	e10	e6.9	e66	e48	e20	e8.9	13	19
21	9.9	8.5	e21	e16	e10	e8.6	e33	e38	e20	e8.8	55	20
22	16	8.5	e10	e16	e10	e6.6	e24	e120	e19	e15	25	16
23	15	8.2	e8.6	e15	e10	e7.4	e19	e170	e18	22	18	45
24	12	11	e8.2	e16	e9.6	e9.0	e16	e120	e17	10	16	26
25	8.5	10	e7.8	e15	e11	e7.8	e14	e80	e16	11	15	27
26	8.3	7.9	e7.4	e15	e9.4	e12	e13	e140	e16	9.8	27	25
27	7.5	8.2	e7.6	e14	e10	e20	e12	e80	e15	9.6	21	18
28	7.4	9.8	e7.6	e14	e11	e52	e12	e50	e14	9.8	16	18
29	17	8.7	e7.4	e14	e10	e25	e15	e40	e14	9.6	15	18
30	19	7.9	e7.2	e14	---	e15	e21	e38	e13	30	14	35
31	e17	---	e7.2	e14	---	e20	---	e140	---	40	15	---
TOTAL	360.9	315.8	250.2	1490.8	420.0	361.6	1079	1810	911	409.8	669	686
MEAN	11.6	10.5	8.07	48.1	14.5	11.7	36.0	58.4	30.4	13.2	21.6	22.9
MAX	19	16	21	450	32	52	180	170	150	40	60	88
MIN	7.4	7.9	5.6	6.9	9.4	6.6	10	11	13	8.8	12	13
AC-FT	716	626	496	2960	833	717	2140	3590	1810	813	1330	1360
CFSM	1.26	1.14	.87	5.20	1.57	1.26	3.89	6.31	3.28	1.43	2.33	2.47
IN.	1.45	1.27	1.01	6.00	1.69	1.45	4.34	7.28	3.66	1.65	2.69	2.76

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992
MEAN	36.8	23.6	12.0	22.6
MAX	70.5	40.0	17.9	48.1
(WY)	1991	1991	1991	1992
MIN	11.6	10.5	8.07	7.19
(WY)	1992	1992	1992	1990

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1989 - 1992

ANNUAL TOTAL	4700.2	8764.1		
ANNUAL MEAN	12.9	23.9		
HIGHEST ANNUAL MEAN			19.8	
LOWEST ANNUAL MEAN			23.9	1992
HIGHEST DAILY MEAN	75	Mar 26	450	Jan 5 1992
LOWEST DAILY MEAN	5.2	Aug 12	5.6	Dec 16 1990
ANNUAL SEVEN-DAY MINIMUM	6.0	Dec 13	6.0	Dec 13 1990
INSTANTANEOUS PEAK FLOW			2900	Jan 5 1992
INSTANTANEOUS LOW FLOW			5.5	Dec 15 1990
ANNUAL RUNOFF (AC-FT)	9320	17380	14330	
ANNUAL RUNOFF (CFSM)	1.39	2.59	2.14	
ANNUAL RUNOFF (INCHES)	18.90	35.25	29.06	
10 PERCENT EXCEEDS	21	43	38	
50 PERCENT EXCEEDS	10	14	12	
90 PERCENT EXCEEDS	7.2	7.9	5.6	

## RIO GRANDE DE ARECIBO BASIN

50026050 RIO CAONILLAS ABOVE LAGO CAONILLAS NEAR JAYUYA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°13'26", long 66°38'22", 300 ft (91 m) off Highway 531, 700 ft (213 m) upstream from Lago Caonillas, 3.3 mi (5.3 km) northwest of Jayuya plaza.

DRAINAGE AREA.--40.4 mi<sup>2</sup> (104.6 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, KF AGAR (COLS. PER 100 ML)
OCT 1991 31...	1200	82	146	7.4	23.0	17	8.6	82	21	3600	2100
JAN 1992 07...	1315	E300	132	7.3	22.0	18	9.5	100	<10	2300	4100
FEB 27...	0845	23	184	7.9	21.0	0.40	9.3	98	14	K36	82
APR 02...	0950	39	201	7.6	23.5	7.5	9.0	95	12	K745	360
JUN 04...	1105	171	170	7.7	25.0	5.1	8.2	78	13	K1300	360
AUG 25...	0940	38	204	7.2	24.0	69	6.2	58	10	K9700	4300

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT 1991 31...	53	4	14	4.5	8.1	0.5	1.8	48	<0.5	11	9.4
JAN 1992 07...	--	--	--	--	--	--	--	32	--	--	--
FEB 27...	--	--	--	--	--	--	--	75	--	--	--
APR 02...	73	6	19	6.2	11	0.6	3.1	69	<0.5	14	12
JUN 04...	--	--	--	--	--	--	--	53	--	--	--
AUG 25...	79	7	21	6.5	14	0.7	1.8	70	--	13	9.3

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991 31...	<0.10	20	98	21.7	12	0.660	0.010	0.670	0.030	0.27
JAN 1992 07...	--	--	--	--	17	1.17	0.030	1.20	0.030	0.27
FEB 27...	--	--	--	--	1	--	<0.010	0.360	0.020	--
APR 02...	<0.10	22	129	13.5	1	--	<0.010	0.570	0.020	--
JUN 04...	--	--	--	--	12	--	<0.010	1.10	<0.010	--
AUG 25...	<0.10	23	133	13.6	82	0.510	0.070	0.580	0.090	--

E = estimate

K = non-ideal count

## RIO GRANDE DE ARECIBO BASIN

50026050 RIO CAONILLAS ABOVE LAGO CAONILLAS NEAR JAYUYA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 31... 1991	0.30	0.97	4.3	0.070	<1	<100	20	<1	<1	40
JAN 07... 1992	0.30	1.5	6.6	0.070	--	--	--	--	--	--
FEB 27... 1992	<0.20	--	--	0.060	--	--	--	--	--	--
APR 02... 1992	<0.20	--	--	0.060	<1	<100	<10	<1	<1	<10
JUN 04... 1992	<0.20	--	--	0.050	--	--	--	--	--	--
AUG 25... 1992	<0.20	--	--	0.080	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 31... JAN 07... FEB 27... APR 02... JUN 04... AUG 25...	1200 -- -- 610 -- --	<1 -- -- -- -- --	60 -- -- 40 -- --	<0.10 -- -- -- -- --	<1 -- -- -- -- --	<1 -- -- -- -- --	<10 -- -- -- -- --	<0.010 -- -- -- -- --	<1 -- -- 2 -- --	0.03 -- -- 0.02 -- --



RIO GRANDE DE ARECIBO BASIN

67

50026140 LAGO CAONILLAS AT CAONILLAS, PR

LOCATION.--Lat 18°16'43", long 66°39'43", Hydrologic Unit 21010001, at Lago Caonillas Dam on Río Caonillas, 2.92 mi (4.7 km) northeast of Plaza de Utuado, 0.34 mi (0.55 km) west from Iglesia Santa María del Monte Carmelo, and 1.85 mi (3.0 km) northwest from Hacienda Carbonell.

DRAINAGE AREA.--48.4 mi<sup>2</sup> (125.4 km<sup>2</sup>).

ELEVATION RECORDS

PERIOD OF RECORD.--March 1991 to current year.

GAGE.--Water stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Caonillas was completed in 1948. The dam is a concrete gravity structure with a total length of 815 ft (248 m), a maximum height of 235 ft (72 m), and a maximum base width of 195 ft (59 m). Nonoverflow sections on each abutment have a total length of 603 ft (184 m). The dam is the main unit of Caonillas Hydroelectric Project, and provides 49,000 acre-feet (60 hm<sup>3</sup>) of usable storage for power generation at Caonillas Power Plant No. 1 located 2.5 mi (4.0 km) downstream from the dam. The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation 824.46 ft (286.91 m), June 3; minimum elevation, less than 771.00 ft (235.00 m), many days.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
705	0	800	27,982
750	8,421	830	46,161

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	780.74	785.97	787.65	788.05	805.98	805.97	A	804.83	823.23	809.95	791.88	784.62
2	780.98	786.32	787.17	787.92	806.02	805.84	805.66	804.93	824.22	809.41	791.29	784.85
3	781.17	786.54	787.26	787.78	806.12	805.82	806.35	804.76	824.11	808.89	790.17	784.97
4	781.28	786.71	787.28	787.82	806.16	805.81	806.39	804.54	824.12	808.67	788.83	785.11
5	781.45	786.93	787.27	790.71	806.19	805.74	806.51	803.86	824.20	808.32	788.87	784.50
6	781.62	786.98	787.26	804.60	806.13	805.73	806.42	803.28	823.87	807.53	788.11	784.72
7	781.76	787.16	787.27	805.85	806.44	805.72	806.57	802.90	822.56	807.11	787.04	786.55
8	781.99	787.38	787.28	805.75	806.53	806.17	806.69	802.27	823.18	806.38	787.13	787.28
9	782.00	787.59	787.37	805.96	806.61	806.31	807.06	802.27	822.76	805.35	787.27	787.63
10	782.14	787.09	787.44	805.44	806.69	806.02	807.45	802.26	822.39	804.20	788.04	787.90
11	782.28	787.17	787.50	805.52	806.47	805.99	807.41	801.70	822.10	803.48	788.25	787.21
12	782.19	787.35	787.57	805.57	806.34	805.32	807.52	801.79	821.33	802.83	788.54	787.17
13	782.18	786.28	787.65	805.59	806.36	804.63	807.61	801.84	820.83	802.33	788.50	787.35
14	782.31	786.21	787.57	805.82	806.41	804.41	807.62	800.84	820.48	801.61	788.64	787.52
15	782.44	786.37	787.63	805.59	806.47	803.25	807.75	800.10	819.76	800.98	788.61	788.53
16	782.57	786.52	787.72	805.59	806.51	803.38	807.68	800.31	819.07	800.23	788.37	789.12
17	782.69	786.48	787.73	805.78	806.48	802.84	807.77	800.80	818.32	799.65	788.15	788.75
18	783.12	786.53	787.75	805.79	806.48	802.90	807.68	801.14	817.39	799.04	787.97	788.95
19	783.48	786.63	787.82	805.77	806.48	801.98	808.31	801.00	816.79	798.67	787.40	788.64
20	783.64	786.55	788.01	805.78	806.48	800.75	809.16	801.86	814.89	798.28	786.52	789.12
21	783.76	786.51	788.40	805.85	806.43	801.17	808.71	801.79	814.22	797.71	785.66	789.12
22	783.97	786.62	788.57	805.91	806.44	801.17	807.96	801.40	814.66	797.06	784.72	789.21
23	783.56	786.73	788.71	805.43	806.44	801.09	807.66	809.65	813.70	796.49	784.71	790.07
24	782.93	786.88	788.81	805.47	806.30	801.09	807.09	812.88	813.21	795.91	784.49	790.58
25	782.67	787.00	788.91	805.53	806.19	801.52	807.00	814.67	812.70	795.95	784.64	790.61
26	782.77	787.12	788.72	805.58	806.18	801.60	807.06	817.10	812.11	795.95	784.73	790.87
27	782.85	787.24	788.61	805.63	806.18	801.25	806.46	818.25	811.67	795.58	784.72	791.01
28	782.71	787.34	788.48	805.76	806.17	801.60	805.88	818.65	811.51	794.58	784.93	791.40
29	783.45	787.44	788.18	805.90	806.10	801.92	805.37	819.53	810.83	793.48	785.10	791.69
30	784.48	787.55	788.09	806.03	---	A	805.13	820.16	810.47	792.62	785.24	792.23
31	785.20	---	787.91	806.05	---	A	---	821.56	---	792.56	784.39	---
TOTAL	24260.38	23605.19	24423.59	24889.82	23383.78	---	---	25002.92	24550.68	24830.80	24402.91	23647.28
MEAN	782.59	786.84	787.86	802.90	806.34	---	---	806.55	818.36	800.99	787.19	788.24
MAX	785.20	787.59	788.91	806.05	806.69	---	---	821.56	824.22	809.95	791.88	792.23
MIN	780.74	785.97	787.17	787.78	805.98	---	---	800.10	810.47	792.56	784.39	784.50

A No gage-height record.

## RIO GRANDE DE ARECIBO BASIN

50027250 RIO GRANDE DE ARECIBO BELOW LAGO DOS BOCAS NEAR FLORIDA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'50", long 66°40'02", at pedestrian bridge, 0.7 mi (1.1 km) downstream from Lago Dos Bocas and 6.6 mi (10.6 km) west of Florida plaza.

DRAINAGE AREA.--169 mi<sup>2</sup> (436 km<sup>2</sup>) does not include 6.0 mi<sup>2</sup> (15.6 km<sup>2</sup>) above Lago Garzas.

PERIOD OF RECORD.--Water years 1970-71, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
NOV 1991											
05...	1030	26	193	7.4	25.5	54	5.4	60	13	200	400
DEC											
30...	0815	20	244	7.6	23.0	1.3	6.3	78	<10	64	85
FEB 1992											
28...	0840	20	244	7.6	23.0	1.4	6.3	79	16	K8	K4
APR											
15...	0900	18	197	6.5	24.5	13	6.0	71	22	54	270
JUN											
24...	0835	16	173	6.8	25.5	7.3	5.6	64	29	K10	37
AUG											
20...	0845	19	200	6.7	26.0	1.6	4.0	52	12	K40	K120

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV 1991											
05...	68	2	19	5.1	8.8	0.5	2.5	64	<0.5	11	11
DEC											
30...	--	--	--	--	--	--	--	85	--	--	--
FEB 1992											
28...	--	--	--	--	--	--	--	85	--	--	--
APR											
15...	76	5	21	5.7	9.7	0.5	2.6	66	<0.5	14	14
JUN											
24...	--	--	--	--	--	--	--	62	--	--	--
AUG											
20...	81	7	22	6.3	11	0.5	2.3	80	--	13	13

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
NOV 1991										
05...	<0.10	20	116	8.07	14	0.660	0.040	0.700	0.060	0.34
DEC										
30...	--	--	--	--	1	0.500	0.010	0.510	0.020	--
FEB 1992										
28...	--	--	--	--	1	--	<0.010	0.350	0.040	0.46
APR										
15...	0.20	18	125	6.1	30	0.630	0.020	0.650	0.040	--
JUN										
24...	--	--	--	--	12	0.140	0.020	0.160	0.090	0.11
AUG										
20...	<0.10	21	135	6.92	10	0.240	0.020	0.260	0.080	0.42

K = non-ideal count

## RIO GRANDE DE ARECIBO BASIN

50027250 RIO GRANDE DE ARECIBO BELOW LAGO DOS BOCAS NEAR FLORIDA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
NOV 1991										
05...	0.40	1.1	4.9	0.070	<1	<100	50	<1	4	70
DEC										
30...	<0.20	--	--	0.030	--	--	--	--	--	--
FEB 1992										
28...	0.50	0.85	3.8	0.030	--	--	--	--	--	--
APR										
15...	<0.20	--	--	0.030	<1	<100	20	<1	<1	10
JUN										
24...	0.20	0.36	1.6	0.020	--	--	--	--	--	--
AUG										
20...	0.40	0.60	2.7	0.020	--	--	--	--	--	--

[illegible]

# RIO GRANDE DE ARECIBO BASIN

50027750 RIO GRANDE DE ARECIBO ABOVE ARECIBO, PR

LOCATION.--Lat 18°25'22", long 66°41'58", Hydrologic Unit 21010002, 0.5 mi (0.8 km) upstream from Río Tanamá, 3.6 mi (5.8 km) south of Arecibo and 4.9 mi (7.9 km) above mouth, and 10.4 mi (16.7 km) downstream from Lago Dos Bocas.

DRAINAGE AREA.--200 mi<sup>2</sup> (520 km<sup>2</sup>), approximately, of which an undetermined amount does not contribute directly to surface runoff.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.--April 1982 to current year.**

**GAGE.--Water-stage recorder. Elevation of gage is 30 ft (9 m), from topographic map.**

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Lago Dos Bocas Dam 10.4 mi (16.7 km) upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	e210	188	191	e99	141	34	241	722	422	611	65
2	217	e230	51	162	e96	e40	35	83	1210	407	597	101
3	446	e420	99	181	e40	e37	66	262	737	350	367	436
4	382	e450	62	154	e33	e34	109	185	618	199	478	293
5	94	e320	72	95	e233	e560	162	281	519	222	427	311
6	61	536	111	614	337	e45	295	282	377	595	351	67
7	49	609	113	542	406	e38	120	278	574	236	397	38
8	165	532	93	536	e130	e34	74	432	680	257	89	84
9	114	219	84	634	e47	e40	346	95	638	271	186	440
10	137	422	44	516	e130	87	805	51	665	214	548	666
11	312	328	36	307	223	112	748	358	669	358	468	653
12	96	231	34	121	453	e560	245	292	674	378	123	129
13	237	502	38	448	135	e740	55	248	643	591	151	68
14	333	656	43	214	e35	e160	46	405	388	98	133	64
15	136	284	176	334	e33	e250	132	120	625	61	46	89
16	230	114	43	159	e34	e540	130	84	658	391	255	115
17	47	76	39	78	e120	157	134	80	692	408	e110	316
18	42	339	37	225	e45	58	49	566	727	301	e98	130
19	41	139	35	132	e41	57	300	730	825	314	e200	313
20	112	175	38	134	e39	836	543	576	113	361	e300	247
21	419	83	53	124	e37	e1200	745	618	302	450	e580	145
22	516	182	46	40	e35	219	862	828	719	324	e480	359
23	266	52	63	228	e34	46	565	1650	674	341	e58	210
24	229	42	54	e173	e170	93	541	2030	242	360	e400	513
25	415	42	51	e60	e80	42	196	993	120	90	608	593
26	99	39	77	e47	e52	37	81	811	78	51	485	304
27	86	38	113	e212	e34	350	409	906	64	216	354	92
28	168	37	164	e66	34	80	354	690	148	420	81	201
29	313	36	135	e181	38	91	463	588	199	447	38	403
30	344	58	178	e460	---	39	191	476	511	482	33	526
31	658	---	430	e251	---	35	---	569	---	126	143	---
TOTAL	6851	7401	2800	7619	3223	6758	8835	15808	15811	9741	9195	7971
MEAN	221	247	90.3	246	111	218	294	510	527	314	297	266
MAX	658	656	430	634	453	1200	862	2030	1210	595	611	666
MIN	41	36	34	40	33	34	34	51	64	51	33	38
AC-FT	13590	14680	5550	15110	6390	13400	17520	31360	31360	19320	18240	15810
CFSM	1.10	1.23	.45	1.23	.56	1.09	1.47	2.55	2.64	1.57	1.48	1.33
IN.	1.27	1.38	.52	1.42	.60	1.26	1.64	2.94	2.94	1.81	1.71	1.48

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1992, BY WATER YEAR (WY)

MEAN	726	642	309	255	241	227	418	699	398	280	275	498
MAX	1984	1413	570	437	428	351	617	2000	683	374	474	1080
(WY)	1986	1986	1988	1988	1988	1985	1986	1986	1987	1987	1988	1984
MIN	221	247	90.3	167	111	114	207	185	195	161	154	266
(WY)	1992	1992	1992	1989	1992	1987	1984	1989	1990	1990	1990	1992

## SUMMARY STATISTICS

**FOR 1991 CALENDAR YEAR**

**FOR 1992 WATER YEAR**

**WATER YEARS 1982 - 1992**

ANNUAL TOTAL	97499		102013			
ANNUAL MEAN	267		279		415	
HIGHEST ANNUAL MEAN					729	1986
LOWEST ANNUAL MEAN					279	1992
HIGHEST DAILY MEAN	1030	May 11	2030	May 24	14800	May 18 1985
LOWEST DAILY MEAN	34	Dec 12	33	Feb 4	33	Feb 4 1992
ANNUAL SEVEN-DAY MINIMUM	41	Nov 23	41	Nov 23	41	Nov 23 1991
INSTANTANEOUS PEAK FLOW			3880	May 23	45800	May 18 1985
INSTANTANEOUS PEAK STAGE			9.03	May 23	18.22	May 18 1985
INSTANTANEOUS LOW FLOW					30	Mar 30 1986
ANNUAL RUNOFF (AC-FT)	193400		202300		300700	
ANNUAL RUNOFF (CFSM)	1.34		1.39		2.08	
ANNUAL RUNOFF (INCHES)	18.13		18.97		28.20	
10 PERCENT EXCEEDS	535		620		838	
50 PERCENT EXCEEDS	219		199		275	
90 PERCENT EXCEEDS	58		40		63	

## RIO GRANDE DE ARECIBO BASIN

50027750 RIO GRANDE DE ARECIBO ABOVE ARECIBO, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS APRIL 1982 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
APR. 22	1125	121	230	26.0	AUG. 16	0930	92	242	22.5
JUN. 25	1145	43	273	28.0					

## RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR

LOCATION.--Lat 18°18'02", long 66°46'58", Hydrologic Unit 21010001, on downstream side of left abutment of bridge on Highway 111, 1.2 mi (1.9 km) upstream from natural tunnel, 1.5 mi (2.4 km) northeast of Angeles, and 5.8 mi (9.3 km) northwest of Utuado.

DRAINAGE AREA.--18.4 mi<sup>2</sup> (47.7 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1944 to June 1958 (daily stage and two to four measurements per month by Puerto Rico Water Resources Authority), November 1959 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 938.32 ft (286.000 m) above mean sea level. Datum of gage was lowered 3.00 ft (0.914 m) on Oct. 1978. Prior to Nov. 17, 1966, non-recording gage and Nov. 17, 1966 to Sept. 30, 1978 recording gage, both at present site.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	73	26	21	18	12	41	27	223	22	47	124
2	40	57	26	20	17	12	e28	37	99	22	36	e61
3	36	51	26	19	16	12	e24	26	74	23	32	42
4	35	48	26	19	16	11	e20	24	e66	22	69	39
5	34	45	25	25	16	11	18	23	e58	23	55	43
6	34	44	24	203	17	11	21	23	55	25	92	45
7	34	43	24	e34	19	18	29	23	72	26	57	85
8	91	41	24	26	17	26	25	22	133	34	59	75
9	49	39	24	25	16	21	59	21	e65	28	52	47
10	40	38	24	23	15	20	65	21	91	26	45	74
11	36	37	23	25	14	19	35	45	63	45	41	48
12	34	36	23	26	15	13	30	80	51	31	37	44
13	36	36	22	24	15	12	27	37	45	27	44	43
14	34	35	24	22	15	12	23	28	41	33	39	43
15	34	35	22	21	15	12	24	26	40	32	35	42
16	32	35	22	21	14	11	47	58	38	27	34	42
17	30	34	22	21	14	15	40	49	37	27	35	42
18	76	33	22	20	14	14	27	99	35	30	33	41
19	118	33	21	19	14	12	88	194	34	38	32	42
20	103	32	37	19	14	11	45	e85	34	78	34	84
21	109	32	35	18	13	10	33	e84	33	46	55	45
22	139	32	24	18	13	10	31	54	32	36	63	46
23	82	31	23	18	13	9.9	28	199	30	30	72	48
24	e63	32	22	19	13	9.6	26	132	29	57	42	41
25	e56	31	21	18	13	33	25	101	27	46	72	38
26	50	30	21	19	13	22	24	100	27	32	49	37
27	46	31	21	18	13	15	24	74	26	66	42	36
28	59	28	21	19	12	74	23	62	25	38	36	52
29	71	28	21	19	12	180	23	76	24	32	34	52
30	80	27	21	19	---	e50	25	59	23	41	33	135
31	124	---	22	19	---	47	---	91	---	101	32	---
TOTAL	1857	1127	739	837	426	745.5	978	1980	1630	1144	1438	1636
MEAN	59.9	37.6	23.8	27.0	14.7	24.0	32.6	63.9	54.3	36.9	46.4	54.5
MAX	139	73	37	203	19	180	88	199	223	101	92	135
MIN	30	27	21	18	12	9.6	18	21	23	22	32	36
AC-FT	3680	2240	1470	1660	845	1480	1940	3930	3230	2270	2850	3250
CFSM	3.26	2.04	1.30	1.47	.80	1.31	1.77	3.47	2.95	2.01	2.52	2.96
IN.	3.75	2.28	1.49	1.69	.86	1.51	1.98	4.00	3.30	2.31	2.91	3.31

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1992, BY WATER YEAR (WY)

	MEAN	80.7	70.5	43.3	29.4	25.2	24.8	37.4	59.2	43.2	37.9	47.6	74.7
MAX	195	159	121	50.1	40.5	71.2	142	193	116	65.7	110	177	
(WY)	1990	1969	1966	1966	1961	1972	1969	1963	1979	1981	1979	1961	
MIN	25.4	29.3	21.5	18.0	13.2	11.0	9.70	12.4	16.5	19.5	24.3	27.6	
(WY)	1963	1979	1965	1974	1965	1984	1984	1977	1977	1976	1976	1986	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1960 - 1992

ANNUAL TOTAL	15176						14537.5					
ANNUAL MEAN	41.6						39.7			47.9		
HIGHEST ANNUAL MEAN										71.1		1969
LOWEST ANNUAL MEAN										29.9		1983
HIGHEST DAILY MEAN	338	May 5					223	Jun 1	2170		May 17	1963
LOWEST DAILY MEAN	11	Mar 15					9.6	Mar 24	6.5		May 12	1984
ANNUAL SEVEN-DAY MINIMUM	12	Mar 13					11	Mar 18	7.4		May 6	1984
INSTANTANEOUS PEAK FLOW							3490	Jan 6	12200		May 18	1985
INSTANTANEOUS PEAK STAGE							12.46	Jan 6	17.45		May 18	1985
INSTANTANEOUS LOW FLOW							9.4	Mar 24	6.6		Jun 12	1977
ANNUAL RUNOFF (AC-FT)	30100						28840		34710			
ANNUAL RUNOFF (CFSM)	2.26						2.16		2.60			
ANNUAL RUNOFF (INCHES)	30.68						29.39		35.38			
10 PERCENT EXCEEDS	74						74		84			
50 PERCENT EXCEEDS	34						32		33			
90 PERCENT EXCEEDS	17						15		17			

RIO GRANDE DE ARECIBO BASIN  
50028000 RIO TANAMA NEAR UTUADO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED SEDIMENT DISCHARGE: January 1968 to current year.

INSTRUMENTATION.--US D-49 SEDIMENT SAMPLER SINCE OCTOBER 1968. AUTOMATIC SEDIMENT SAMPLER SINCE 1990

REMARKS.--Sediment samples were collected by a local observer on a weekly basis and during high flow events. Estimates for period of missing daily record were made from a sediment transport curve developed from a period of record over 5 years.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 20,400 mg/L November 27, 1968; minimum daily mean, 0 mg/L during water year 1985.

SEDIMENT LOADS: Maximum daily, 167,000 tons (152,000 tonnes) May 18, 1985, minimum daily, 0.0 ton (0.0 tonne) several days during many years.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,900 mg/L October 1, 1990; minimum daily mean, 3.0 mg/L several days.

SEDIMENT LOADS: Maximum daily, 16,500 tons (15,000 tonnes) October 17, 1989; minimum daily 0.14 ton (0.13 tonne) several days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DEMAND, CHEM-ICAL (HIGH SATUR-ATION) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS. / 100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	
OCT 21...	1310	55	142	7.5	22.5	24	8.9	102	<10	2000	1000
DEC 17...	1030	23	146	7.8	20.5	1.9	6.4	80	<10	97	220
FEB 18...	1200	13	175	7.7	22.0	1.2	8.8	99	<10	22	110
APR 09...	1020	22	156	7.5	23.0	5.9	9.8	106	<10	R16000	R2000
JUL 08...	0840	26	167	6.8	24.5	2.1	8.4	90	<10	270	--
SEP 03...	1055	43	154	7.1	27.0	10	7.1	84	<10	R590	R110

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991											
21...	53	4	13	4.9	7.5	0.4	2.2	38	<0.5	12	6.6
DEC 17...	--	--	--	--	--	--	--	49	--	--	--
FEB 1992											
18...	--	--	--	--	--	--	--	52	--	--	--
APR 09...	62	7	16	5.3	7.6	0.4	2.4	48	<0.5	15	12
JUL 08...	--	--	--	--	--	--	--	54	--	--	--
SEP 03...	61	5	16	5.1	7.7	0.4	2.0	94	--	12	8.2

R = non-ideal count

## RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
21...	<0.10	20	89	13.2	19	0.780	0.020	0.800	0.040	--
DEC 17...	--	--	--	--	1	0.670	0.010	0.680	0.010	--
FEB 1992										
18...	--	--	--	--	7	--	<0.010	0.590	0.020	--
APR 09...	0.20	24	111	6.59	14	0.650	0.020	0.670	0.040	--
JUL 08...	--	--	--	--	16	0.690	0.010	0.700	0.020	0.18
SEP 03...	<0.10	22	105	12.2	<1	--	<0.010	0.890	0.010	--

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
21...	<0.20	--	--	0.040	<1	<100	10	<1	3	20
DEC										
17...	<0.20	--	--	0.020	--	--	--	--	--	--
FEB 1992										
18...	0.20	0.90	4.0	0.040	--	--	--	--	--	--
APR										
09...	<0.20	--	--	<0.010	<1	<100	<10	<1	<1	10
JUL										
08...	--	--	--	--	--	--	--	--	--	--
SEP										
03...	<0.20	--	--	0.020	--	--	--	--	--	--

[illegible]



## RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	52	65	18	73	97	21	26	6	.42
2	40	27	3.1	57	40	6.7	26	6	.45
3	36	21	2.0	51	12	1.7	26	7	.51
4	35	20	1.9	48	7	.92	26	7	.47
5	34	17	1.5	45	5	.63	25	5	.33
6	34	11	1.0	44	4	.49	24	4	.26
7	34	9	.85	43	5	.58	24	3	.22
8	91	315	404	41	6	.66	24	3	.22
9	49	38	5.7	39	7	.75	24	4	.25
10	40	21	2.4	38	7	.71	24	4	.24
11	36	20	1.9	37	6	.64	23	4	.24
12	34	19	1.7	36	6	.58	23	4	.24
13	36	14	1.4	36	6	.58	22	4	.24
14	34	10	.92	35	6	.57	24	4	.24
15	34	8	.75	35	6	.56	22	4	.24
16	32	6	.56	35	6	.56	22	4	.24
17	30	5	.40	34	6	.55	22	4	.27
18	76	279	243	33	6	.53	22	5	.30
19	118	448	499	33	5	.43	21	5	.29
20	103	515	273	32	3	.30	37	29	4.8
21	109	360	387	32	3	.26	35	28	3.6
22	139	492	598	32	3	.29	24	8	.55
23	82	114	27	31	4	.33	23	5	.31
24	e63	38	e6.9	32	4	.34	22	4	.27
25	e56	30	e4.4	31	4	.37	21	6	.39
26	50	38	4.9	30	5	.40	21	9	.52
27	46	35	4.4	31	5	.39	21	11	.62
28	59	83	25	28	5	.43	21	12	.68
29	71	140	64	28	6	.46	21	12	.66
30	80	141	46	27	6	.43	21	10	.57
31	124	393	362	---	---	---	22	7	.43
TOTAL	1857	---	2992.68	1127	---	43.14	739	---	19.07

e Estimated

## RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	21	5	.31	18	7	.36	12	2	.06
2	20	4	.23	17	7	.32	12	2	.06
3	19	4	.23	16	5	.24	12	2	.06
4	19	5	.28	16	5	.22	11	2	.07
5	25	12	1.0	16	5	.22	11	3	.10
6	203	481	1190	17	5	.24	11	4	.13
7	e34	29	e3.0	19	5	.27	18	9	.62
8	26	12	.83	17	6	.29	26	29	6.9
9	25	10	.63	16	7	.32	21	11	.67
10	23	8	.51	15	8	.32	20	7	.60
11	25	7	.48	14	7	.29	19	9	.52
12	26	10	.70	15	6	.25	13	6	.21
13	24	12	.74	15	5	.21	12	6	.20
14	22	13	.79	15	4	.18	12	5	.18
15	21	12	.67	15	4	.16	12	4	.14
16	21	8	.46	14	4	.16	11	4	.12
17	21	5	.29	14	4	.16	15	4	.15
18	20	4	.21	14	4	.15	14	4	.15
19	19	4	.20	14	4	.14	12	3	.11
20	19	4	.21	14	25	.86	11	3	.09
21	18	4	.21	13	4	.14	10	3	.08
22	18	4	.20	13	5	.18	10	2	.06
23	18	4	.20	13	6	.22	9.9	2	.06
24	19	4	.20	13	6	.22	9.6	2	.06
25	18	3	.18	13	5	.20	33	47	16
26	19	3	.15	13	5	.18	22	8	.58
27	18	3	.14	13	4	.15	15	5	.25
28	19	2	.12	12	3	.11	74	293	252
29	19	2	.13	12	2	.08	180	868	2810
30	19	4	.21	---	---	---	e50	86	e12
31	19	6	.30	---	---	---	47	77	20
TOTAL	837	---	1203.81	426	---	6.84	745.5	---	3122.23

e Estimated

## RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	41	35	5.0	27	10	.75	223	1010	4060
2	e28	19	e1.4	37	10	.97	99	257	80
3	e24	17	e1.1	26	10	.70	74	56	11
4	e20	13	e.66	24	10	.63	e66	28	e5.0
5	18	10	.49	23	10	.62	e58	18	e2.8
6	21	8	.48	23	10	.59	55	12	1.8
7	29	8	.58	23	8	.49	72	100	46
8	25	8	.57	22	6	.36	133	517	1030
9	59	129	62	21	4	.26	e65	79	e16
10	65	96	24	21	4	.27	91	217	114
11	35	25	2.8	45	67	21	63	69	14
12	30	13	1.1	80	451	372	51	29	4.1
13	27	11	.85	37	33	3.9	45	27	3.2
14	23	10	.59	28	16	1.2	41	24	2.6
15	24	11	.78	26	14	.94	40	21	2.2
16	47	75	30	58	85	23	38	17	1.8
17	40	31	4.7	49	64	18	37	14	1.4
18	27	13	1.0	99	561	546	35	12	1.1
19	88	301	321	194	1070	1820	34	10	.86
20	45	45	6.0	e85	124	e35	34	8	.72
21	33	21	1.9	e84	143	e56	33	7	.65
22	31	19	1.6	54	54	8.6	32	7	.58
23	28	22	1.7	199	1070	827	30	8	.63
24	26	23	1.6	132	309	129	29	10	.74
25	25	20	1.3	101	185	55	27	10	.75
26	24	15	.94	100	176	56	27	10	.70
27	24	11	.67	74	40	8.4	26	10	.64
28	23	9	.55	62	19	3.1	25	8	.53
29	23	8	.52	76	105	38	24	7	.44
30	25	9	.56	59	87	16	23	7	.45
31	---	---	---	91	229	161	---	---	---
TOTAL	978	---	476.44	1980	---	4204.78	1630	---	5404.69

e Estimated

## RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	22	8	.48	47	38	5.2	124	731	1150
2	22	9	.52	36	22	2.2	e61	71	e14
3	23	11	.62	32	20	1.8	42	30	3.5
4	22	14	.77	69	179	124	39	27	2.8
5	23	17	1.0	55	65	14	43	26	3.0
6	25	18	1.2	92	229	124	45	32	4.1
7	26	18	1.2	57	74	12	85	386	275
8	34	25	2.7	59	81	25	75	123	39
9	28	14	1.1	52	51	8.2	47	41	5.6
10	26	13	.92	45	25	3.3	74	205	149
11	45	55	15	41	20	2.2	48	44	6.2
12	31	23	2.1	37	14	1.4	44	29	3.4
13	27	17	1.2	44	35	9.1	43	22	2.6
14	33	22	3.0	39	40	4.5	43	20	2.3
15	32	31	3.0	35	28	2.7	42	17	1.8
16	27	23	1.6	34	16	1.4	42	14	1.5
17	27	14	.95	35	17	1.6	42	21	3.2
18	30	17	1.4	33	20	1.8	41	48	5.6
19	38	30	4.6	32	21	1.8	42	66	16
20	78	200	133	34	21	1.7	84	293	160
21	46	33	4.4	55	118	39	45	48	6.6
22	36	12	1.1	63	190	55	46	41	6.5
23	30	12	.91	72	121	41	48	34	4.0
24	57	106	49	42	46	5.7	41	31	3.4
25	46	53	8.3	72	906	442	38	25	2.5
26	32	22	1.9	49	47	7.8	37	15	1.5
27	66	183	144	42	27	3.0	36	10	.98
28	38	24	2.7	36	19	1.8	52	78	33
29	32	18	1.5	34	17	1.6	52	61	12
30	41	38	7.0	33	17	1.5	135	1030	1140
31	101	341	351	32	16	1.4	---	---	---
TOTAL	1144	---	748.17	1438	---	947.7	1636	---	3059.08
YEAR	14537.5		22228.63						

e Estimated

RIO GRANDE DE ARECIBO BASIN  
50028000 RIO TANAMA NEAR UTUADO, PR--Continued  
WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
OCT 1991							
18...	1610	292	7490	5900	7	12	17
20...	1900	197	3780	2010	12	24	32
31...	1543	240	3220	2090	19	26	37
JAN 1992							
06...	0220	1330	16000	56300	3	7	11
MAY							
12...	1630	545	4070	5990	28	39	48
23...	0915	289	1830	1430	42	48	42
JUN							
01...	1645	3400	7830	71900	24	35	42
JUL							
31...	1445	535	3720	5370	30	36	44
SEP							
01...	1550	988	7160	19100	21	23	32
07...	1728	300	3700	3000	36	41	48
19...	2355	254	2320	1590	36	43	50
30...	1610	821	10100	22400	20	29	37
DATE		SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
OCT 1991							
18...	27	39	58	75	89	98	99
20...	47	62	81	92	97	99	99.5
31...	53	64	83	93	98	99	99.6
JAN 1992							
06...	17	25	39	54	77	93	99
MAY							
12...	63	73	87	95	98	99	100
23...	59	64	92	97	99	99.7	99.8
JUN							
01...	53	65	80	90	96	99	99.8
JUL							
31...	55	66	77	83	97	99	99.8
SEP							
01...	39	50	60	72	84	94	99
07...	61	72	91	97	98	99	100
19...	58	65	79	91	97	99	100
30...	50	56	70	85	93	97	99

## RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
18...	1625	457	3340	4120	83
20...	1716	361	911	888	86
20...	2015	130	3240	1140	94
22...	1638	353	2500	2390	80
31...	1618	661	3070	5480	72
31...	1808	246	1440	957	84
DEC					
02...	1310	23	30	1.9	85
MAR 1992					
30...	1256	79	70	15	91
APR					
09...	0816	22	131	7.8	96
15...	1920	231	1770	1100	91
MAY					
12...	1610	389	2610	2740	85
18...	1028	40	255	27.6	98
18...	1840	471	2410	3070	84
18...	1920	540	4830	7050	81
18...	2020	290	2690	2100	93
23...	0800	215	4430	2572	74
23...	0855	274	1660	1230	84
JUN					
02...	0837	102	268	101	69
JUL					
31...	1340	272	2550	1870	58
AUG					
25...	1623	255	1540	1060	72
25...	1648	493	3100	4120	81
25...	1928	107	3900	1130	93
SEP					
01...	1550	330	1650	1470	79
01...	1730	419	4290	4860	90
07...	2100	253	2100	1430	79
20...	0115	210	1800	1020	92
30...	0802	46	368	46	99
30...	1520	455	3610	4440	81

## RIO GRANDE DE ARECIBO BASIN

50028400 RIO TANAMA AT CHARCO HONDO, PR

LOCATION.--Lat 18°24'52", long 66°42'52", Hydrologic Unit 21010002 on right bank at abandoned power house at Charco Hondo, 1.5 mi (2.4 km) upstream from mouth, and 4 mi (6 km) south of Arecibo.

DRAINAGE AREA.--57.6 mi<sup>2</sup> (149.2 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1969 to June 1971, October 1981 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 60 ft (18 m), from topographic map.

REMARKS.--Records poor. Diversion 0.8 mi (1.3 km) upstream for municipal supply of Arecibo.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	283	53	49	41	33	e97	e60	412	67	325	165
2	95	176	54	46	40	32	e70	e80	236	67	117	123
3	83	e110	53	44	42	32	e54	e62	e150	67	68	68
4	79	e98	53	43	51	32	e45	e53	e130	74	87	61
5	76	e92	52	106	42	32	e43	e50	e120	85	102	58
6	74	e87	51	e288	41	31	e47	e50	e115	67	126	66
7	77	e96	50	e150	43	34	e64	e50	e150	65	102	104
8	131	e125	50	e70	41	40	e56	e48	e270	67	69	152
9	119	e94	50	e58	39	55	e120	e47	e140	71	93	104
10	106	e82	50	e55	39	33	166	e47	e190	67	70	111
11	90	e78	49	55	38	42	272	e90	e150	76	58	102
12	84	e74	49	65	38	32	e120	e170	e120	80	51	66
13	82	e71	48	56	37	30	e70	e101	e110	68	43	59
14	110	e69	50	52	37	29	e60	e62	e100	68	62	e78
15	82	e68	48	49	37	29	e90	e57	e90	73	44	e90
16	77	e68	47	48	37	30	77	e75	e86	70	44	107
17	74	e67	49	48	37	32	89	90	e82	70	e45	73
18	112	e65	47	47	36	36	82	148	73	69	49	67
19	195	e64	46	46	36	30	144	366	70	73	45	63
20	213	e63	52	45	36	31	e115	239	68	132	43	207
21	229	e62	100	44	34	31	e80	e212	67	110	57	116
22	234	e62	56	44	34	31	e70	229	66	96	73	69
23	181	e61	51	44	34	31	e63	483	65	71	115	101
24	113	e60	48	44	35	31	e58	407	66	e58	144	127
25	96	e62	47	44	35	48	e55	235	68	112	106	76
26	91	e58	46	45	36	98	e54	273	67	63	96	83
27	91	57	46	43	35	36	e52	198	66	92	100	63
28	95	57	46	43	34	73	e50	148	66	89	70	59
29	100	57	46	43	34	358	e50	166	66	61	58	94
30	164	54	45	42	---	209	e55	148	65	58	52	180
31	257	---	45	42	---	76	---	224	---	251	49	---
TOTAL	3705	2520	1577	1898	1099	1697	2468	4668	3524	2537	2563	2892
MEAN	120	84.0	50.9	61.2	37.9	54.7	82.3	151	117	81.8	82.7	96.4
MAX	257	283	100	288	51	358	272	483	412	251	325	207
MIN	74	54	45	42	34	29	43	47	65	58	43	58
AC-FT	7350	5000	3130	3760	2180	3370	4900	9260	6990	5030	5080	5740
CFSM	2.07	1.46	.88	1.06	.66	.95	1.43	2.61	2.04	1.42	1.44	1.67
IN.	2.39	1.63	1.02	1.23	.71	1.10	1.59	3.01	2.28	1.64	1.66	1.87

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1992, BY WATER YEAR (WY)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	171	144	79.2	53.0	44.9	39.2	70.9	139	89.1	70.0	76.6	114												
MAX	335	260	219	90.8	85.1	70.0	141	371	179	120	125	216												
(WY)	1990	1982	1982	1982	1971	1971	1986	1986	1970	1969	1991	1984												
MIN	72.1	71.5	36.4	22.3	16.7	16.6	25.9	15.8	23.3	22.0	37.4	59.7												
(WY)	1983	1988	1989	1989	1989	1988	1989	1989	1989	1989	1987	1986												

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1969 - 1992

ANNUAL TOTAL	32091	31148	
ANNUAL MEAN	87.9	85.1	88.1
HIGHEST ANNUAL MEAN			124
LOWEST ANNUAL MEAN			51.3
HIGHEST DAILY MEAN	479	483	2500
LOWEST DAILY MEAN	35	29	4.2
ANNUAL SEVEN-DAY MINIMUM	36	31	5.4
INSTANTANEOUS PEAK FLOW		2920	15000
INSTANTANEOUS PEAK STAGE		11.32	17.95
INSTANTANEOUS LOW FLOW		29	3.3
ANNUAL RUNOFF (AC-FT)	63650	61780	63820
ANNUAL RUNOFF (CFSM)	1.53	1.48	1.53
ANNUAL RUNOFF (INCHES)	20.73	20.12	20.78
10 PERCENT EXCEEDS	154	151	180
50 PERCENT EXCEEDS	69	66	65
90 PERCENT EXCEEDS	41	37	27

## RIO GRANDE DE ARECIBO BASIN

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°27'20", long 66°42'10", Hydrologic Unit 21010002, at bridge on unimproved road, about 500 ft (152 m) upstream from Central Cambalache, near Highway 2, 8.3 mi (13.4 km) downstream from Dos Bocas Reservoir, 1.9 mi (3.1 km) downstream from Río Tanamá, and 1.6 mi (2.6 km) southeast of Arecibo.

DRAINAGE AREA.--200 mi<sup>2</sup> (520 km<sup>2</sup>), approximately.

PERIOD OF RECORD.--Water years 1963-66, 1969 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991											
29...	1045	202	240	7.9	25.0	12	7.2	84	<10	K1200	310
JAN 1992											
08...	1115	157	258	7.6	23.5	96	6.8	78	14	K1200	740
FEB											
28...	0945	63	299	7.8	23.5	1.3	8.8	96	12	230	500
JUN											
26...	0945	148	276	7.7	27.5	5.0	7.0	80	<10	650	K180
AUG											
19...	1035	112	281	7.8	26.5	4.3	6.3	72	<10	K7200	900

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991											
29...	110	--	35	5.0	8.7	0.4	1.9	94	<0.5	11	12
JAN 1992											
08...	--	--	--	--	--	--	--	90	--	--	--
FEB											
28...	--	--	--	--	--	--	--	120	--	--	--
JUN											
26...	120	--	40	5.9	8.7	0.3	1.7	110	<0.5	11	10
AUG											
19...	120	--	40	5.8	8.9	0.3	1.5	120	--	11	12

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
29...	0.10	18	148	80.8	8	0.520	0.010	0.530	0.030	--
JAN 1992										
08...	--	--	--	--	83	0.840	0.070	0.910	0.120	0.28
FEB										
28...	--	--	--	--	1	--	<0.010	0.280	0.010	--
JUN										
26...	0.30	16	160	63.8	20	--	<0.010	0.560	0.030	--
AUG										
19...	0.20	16	166	50.2	11	--	<0.010	0.350	0.030	--

K = non-ideal count



## RIO GRANDE DE ARECIBO BASIN

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991 29...	<0.20	--	--	0.040	<1	<100	40	<1	1	30
JAN 1992 08...	0.40	1.3	5.8	0.120	--	--	--	--	--	--
FEB 28...	<0.20	--	--	0.030	--	--	--	--	--	--
JUN 26...	<0.20	--	--	0.020	<1	<100	20	<1	<1	<10
AUG 19...	<0.20	--	--	<0.010	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1991 29...	530	4	30	<0.10	<1	<1	20	<0.010	<1	0.03
JAN 1992 08...	--	--	--	--	--	--	--	--	--	--
FEB 28...	--	--	--	--	--	--	--	--	--	--
JUN 26...	330	<1	60	<0.10	<1	<1	<10	<0.010	<1	0.01
AUG 19...	--	--	--	--	--	--	--	--	--	--

## PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIIN, TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1992 26...	0945	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1992 26...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1992 26...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01

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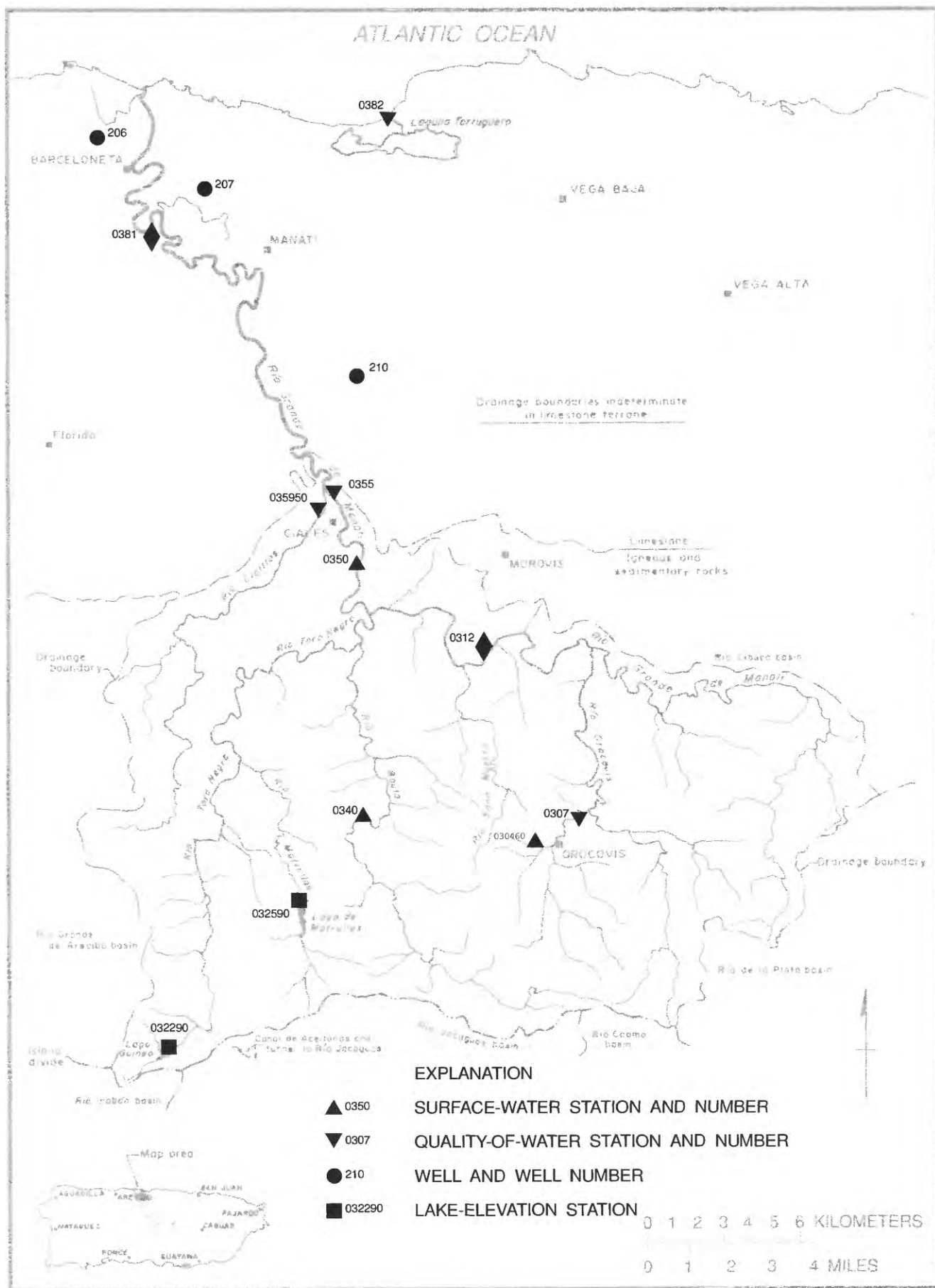


Figure 16.--Río Grande de Manatí basin.

## RIO GRANDE DE MANATI BASIN

50030460 RIO OROCOVIS AT OROCOVIS, PR

LOCATION.--Lat 18°13'25", long 66°23'34", Hydrologic Unit 21010001, on right bank, 0.4 mi (0.6 km) south of junction of Highways 155 and 156 in Orocovis, 600 ft (183 m) upstream from Río Batijas, and 250 ft (76 m) upstream from bridge on Highway 599.

DRAINAGE AREA.--5.03 mi<sup>2</sup> (13.03 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1981 to September 1982, October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 500 ft (152 m), from topographic map.

REMARKS.--Records poor. Low flow affected by diversions for water supply. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e185	13	6.9	3.8	1.6	1.9	1.6	.97	2.6	e1.6	1.6	e1.4
2	e247	11	6.7	3.5	1.7	1.8	1.6	1.1	2.4	e1.5	1.7	e1.3
3	e253	10	6.7	3.4	1.7	1.8	1.8	1.1	2.1	e1.4	1.8	e1.7
4	e105	10	6.9	3.7	1.6	2.0	1.7	.89	2.4	e1.5	1.7	e1.5
5	e32	9.7	7.2	3.7	1.7	1.9	1.7	.89	3.5	e1.4	1.6	1.6
6	18	9.0	6.6	3.8	2.1	1.6	1.7	.94	2.7	e1.5	1.7	42
7	16	8.9	7.0	3.7	3.2	1.8	1.8	1.6	2.6	e1.5	1.6	15
8	17	8.3	6.9	3.4	4.1	1.7	2.0	1.9	2.2	e1.4	1.7	2.8
9	15	8.4	7.1	3.4	3.6	3.5	2.3	2.1	1.4	e1.4	1.6	7.6
10	14	8.5	7.0	3.4	2.6	2.9	2.2	4.4	1.9	1.9	1.8	7.2
11	13	8.0	6.8	2.1	2.2	1.9	1.9	3.4	2.2	2.3	2.1	3.7
12	12	7.9	7.2	2.5	2.4	3.2	2.6	2.5	2.3	1.9	1.7	4.0
13	12	9.0	7.2	1.7	2.8	8.4	2.9	2.5	2.2	2.2	40	169
14	12	8.8	6.9	1.6	8.4	13	2.5	2.3	1.4	2.6	6.9	31
15	22	7.9	6.8	1.8	2.1	3.3	2.3	2.1	6.3	2.2	1.7	15
16	51	7.6	6.6	2.0	1.7	2.3	2.3	2.0	2.0	1.9	1.8	4.5
17	40	7.7	6.9	2.1	1.4	1.9	3.1	2.2	1.6	2.9	1.7	e2.4
18	29	7.9	6.8	2.1	1.5	1.5	5.2	2.3	2.1	1.3	1.5	e2.1
19	19	7.5	6.5	2.4	1.5	1.5	4.1	1.9	2.0	1.8	1.4	e1.9
20	48	7.2	6.5	2.2	1.3	1.5	12	1.6	2.2	2.2	1.6	e1.7
21	54	7.0	6.5	2.1	1.5	1.5	2.7	1.8	2.0	1.7	1.9	e1.5
22	148	7.3	6.2	2.1	1.7	1.4	2.1	1.5	2.1	1.2	1.9	e1.3
23	162	7.1	6.2	2.0	1.6	1.6	1.7	1.4	2.3	1.3	1.9	1.7
24	57	6.9	5.8	1.6	1.6	1.5	1.5	1.6	5.4	2.0	e1.5	56
25	29	6.9	4.8	1.6	1.8	1.4	1.5	1.6	3.3	2.0	e1.3	24
26	43	7.2	3.6	2.0	2.2	1.5	1.6	1.7	2.4	e1.8	e1.2	7.1
27	39	7.2	3.6	2.2	1.6	1.6	1.3	2.0	e1.9	e1.8	e1.5	3.5
28	44	6.7	3.8	1.8	1.6	1.5	1.0	1.9	e1.7	e1.6	1.8	3.2
29	31	6.8	4.2	1.5	---	1.6	1.0	1.8	e1.7	e1.4	36	2.5
30	18	6.7	4.2	1.5	---	1.6	.86	1.6	e1.6	e1.2	e2.0	8.1
31	14	---	4.0	1.5	---	1.6	---	2.2	---	e1.2	e1.7	---
TOTAL	1799	246.1	190.1	76.2	62.8	76.2	72.56	57.79	72.5	53.6	129.9	426.3
MEAN	58.0	8.20	6.13	2.46	2.24	2.46	2.42	1.86	2.42	1.73	4.19	14.2
MAX	253	13	7.2	3.8	8.4	13	12	4.4	6.3	2.9	40	169
MIN	12	6.7	3.6	1.5	1.3	1.4	.86	.89	1.4	1.2	1.2	1.3
AC-FT	3570	488	377	151	125	151	144	115	144	106	258	846
CFSM	11.5	1.63	1.22	.49	.45	.49	.48	.37	.48	.34	.83	2.83
IN.	13.30	1.82	1.41	.56	.46	.56	.54	.43	.54	.40	.96	3.15

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1990, BY WATER YEAR (WY)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
MEAN	28.1	7.05	7.89	2.66	2.36	1.85	3.21	10.2	3.96	2.78
MAX	58.0	9.57	15.8	4.06	2.92	2.46	7.78	31.8	10.4	5.68
(WY)	1990	1982	1982	1982	1982	1982	1981	1981	1981	1989
MIN	7.40	3.38	1.69	1.47	1.92	1.47	1.32	1.42	1.16	1.45
(WY)	1989	1989	1989	1989	1989	1982	1982	1989	1982	1982

## SUMMARY STATISTICS

## FOR 1989 CALENDAR YEAR

## FOR 1990 WATER YEAR

## WATER YEARS 1981 - 1990

ANNUAL TOTAL	4162.80	3263.05	
ANNUAL MEAN	11.4	8.94	7.15
HIGHEST ANNUAL MEAN			8.94
LOWEST ANNUAL MEAN			6.17
HIGHEST DAILY MEAN	420	Sep 18	420
LOWEST DAILY MEAN	1.0	Apr 24	.74
ANNUAL SEVEN-DAY MINIMUM	1.1	Apr 19	.80
INSTANTANEOUS PEAK FLOW		1800	Sep 13
INSTANTANEOUS PEAK STAGE		10.77	Sep 13
ANNUAL RUNOFF (AC-FT)	8260	6470	5180
ANNUAL RUNOFF (CFSM)	2.27	1.78	1.42
ANNUAL RUNOFF (INCHES)	30.79	24.13	19.31
10 PERCENT EXCEEDS	22	13	13
50 PERCENT EXCEEDS	2.0	2.2	2.2
90 PERCENT EXCEEDS	1.2	1.5	1.1

## RIO GRANDE DE MANATI BASIN

50030460 RIO OROCOVIS AT OROCOVIS, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	12	10	9.5	1.7	1.1	1.7	55	2.7	.94	2.0	2.5
2	2.8	11	10	6.2	1.5	1.1	1.7	9.2	2.3	1.3	5.7	2.7
3	3.0	11	27	4.8	1.4	1.1	1.9	4.5	2.3	1.3	10	1.6
4	3.5	10	15	4.1	1.3	.98	2.1	3.6	2.3	e.90	11	1.4
5	5.0	10	11	3.8	2.1	1.2	1.9	3.3	2.7	e.90	5.0	e1.4
6	3.7	9.7	9.3	4.4	4.3	1.2	1.9	2.6	2.7	.94	e1.4	e1.3
7	3.1	8.8	8.8	4.2	2.4	1.3	2.0	8.2	1.5	1.2	1.6	29
8	2.9	8.0	8.1	4.5	1.6	1.2	2.2	6.2	1.2	30	3.1	19
9	3.1	8.0	8.8	3.8	1.3	1.3	1.8	2.7	.87	12	3.4	9.6
10	4.8	7.1	8.3	3.9	3.7	1.5	1.9	4.6	1.3	2.0	2.8	6.2
11	4.0	6.9	8.0	3.1	3.1	1.6	1.8	4.6	.98	.95	e1.3	e1.9
12	3.3	7.0	7.9	3.2	6.6	1.5	2.2	41	.89	e1.0	1.1	e1.8
13	10	6.4	7.4	3.2	5.7	1.5	3.0	104	1.0	e1.0	1.4	e1.8
14	82	6.3	7.3	2.5	2.9	1.4	2.3	42	.70	e1.1	20	e1.6
15	110	6.2	7.8	2.5	2.3	1.2	2.5	23	.95	e1.3	9.2	e1.5
16	130	6.5	7.1	2.8	2.7	1.2	2.2	11	.92	139	2.7	e1.5
17	88	6.1	6.1	2.5	1.8	1.1	1.8	7.2	.84	24	10	3.7
18	76	5.9	6.1	2.0	2.5	1.4	2.2	6.6	.87	8.7	6.6	2.4
19	68	5.8	5.7	1.9	5.1	1.3	2.3	5.0	.95	4.1	2.0	1.1
20	24	106	6.4	2.0	2.3	1.3	2.0	3.5	1.6	2.5	2.8	1.9
21	209	38	5.1	1.7	2.5	1.4	1.4	3.2	2.8	2.0	2.7	3.0
22	54	47	6.1	1.8	1.7	3.8	1.5	3.2	2.0	1.7	12	1.8
23	30	26	6.5	2.2	1.4	2.4	1.6	3.5	1.0	1.8	17	2.3
24	34	16	6.1	1.7	1.4	1.6	1.5	3.4	1.0	1.8	4.9	1.8
25	92	13	4.7	1.8	1.4	1.4	1.4	2.9	.95	3.2	3.2	e1.3
26	111	12	4.8	1.6	1.3	19	1.6	2.9	.93	3.2	1.5	e1.4
27	53	12	4.5	1.7	1.3	7.6	1.6	3.5	1.0	1.5	34	13
28	38	11	4.7	1.5	1.2	3.7	1.6	4.3	.98	5.3	22	9.9
29	25	10	4.2	1.5	---	2.7	1.8	3.5	1.0	2.1	7.0	4.0
30	19	11	6.0	1.6	---	2.2	12	3.6	.96	1.5	3.6	3.5
31	15	---	26	1.8	---	1.8	---	3.7	---	1.3	2.8	---
TOTAL	1310.9	454.7	264.8	93.8	68.5	73.08	67.4	385.5	42.19	260.53	213.8	135.9
MEAN	42.3	15.2	8.54	3.03	2.45	2.36	2.25	12.4	1.41	8.40	6.90	4.53
MAX	209	106	27	9.5	6.6	19	12	104	2.8	139	34	29
MIN	2.8	5.8	4.2	1.5	1.2	.98	1.4	2.6	.70	.90	1.1	1.1
AC-FT	2600	902	525	186	136	145	134	765	84	517	424	270
CFSM	8.41	3.01	1.70	.60	.49	.47	.45	2.47	.28	1.67	1.37	.90
IN.	9.69	3.36	1.96	.69	.51	.54	.50	2.85	.31	1.93	1.58	1.01

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1991, BY WATER YEAR (WY)

	MEAN	31.6	9.08	8.05	2.75	2.38	1.97	3.02	10.7	3.45	3.90	5.42	15.7
MAX	58.0	15.2	15.8	4.06	2.92	2.46	7.78	31.8	10.4	8.40	12.3	39.6	
(WY)	1990	1991	1982	1982	1982	1990	1981	1981	1981	1991	1989	1989	
MIN	7.40	3.38	1.69	1.47	1.92	1.47	1.32	1.42	1.16	1.45	1.03	4.53	
(WY)	1989	1989	1989	1989	1989	1982	1982	1989	1982	1982	1982	1991	

## SUMMARY STATISTICS

## FOR 1990 CALENDAR YEAR

## FOR 1991 WATER YEAR

## WATER YEARS 1981 - 1991

ANNUAL TOTAL	3058.25	3371.10	
ANNUAL MEAN	8.38	9.24	7.67
HIGHEST ANNUAL MEAN			9.24
LOWEST ANNUAL MEAN			6.17
HIGHEST DAILY MEAN	209	209	420
LOWEST DAILY MEAN	.86	.70	.70
ANNUAL SEVEN-DAY MINIMUM	.96	.88	.80
INSTANTANEOUS PEAK FLOW		803	
INSTANTANEOUS PEAK STAGE		8.81	
ANNUAL RUNOFF (AC-FT)	6070	6690	5560
ANNUAL RUNOFF (CFSM)	1.67	1.84	1.52
ANNUAL RUNOFF (INCHES)	22.62	24.93	20.72
10 PERCENT EXCEEDS	13	19	13
50 PERCENT EXCEEDS	2.2	2.9	2.3
90 PERCENT EXCEEDS	1.5	1.2	1.1

## RIO GRANDE DE MANATI BASIN

50030460 RIO OROCOVIS AT OROCOVIS, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	7.8	e1.0	1.0	1.9	1.3	2.4	3.0	158	2.5	1.5	2.1
2	2.2	6.9	1.3	.97	1.5	1.2	4.5	7.2	51	11	1.9	2.6
3	1.9	3.7	1.2	.92	1.7	1.7	2.2	3.2	29	4.5	.93	2.9
4	1.6	1.8	1.4	.98	1.8	1.4	1.5	2.3	21	3.1	1.4	2.8
5	1.7	3.1	1.3	415	1.9	1.2	1.6	1.5	17	2.3	3.0	2.5
6	1.7	3.3	1.3	358	12	1.2	1.5	7.4	15	3.5	4.5	2.9
7	20	3.6	1.3	48	14	1.1	2.4	3.4	13	2.8	1.3	2.2
8	9.7	3.3	1.3	41	12	1.4	1.7	1.8	12	4.1	1.3	5.7
9	4.3	2.4	1.5	32	5.1	1.5	71	1.5	11	2.4	1.3	2.5
10	3.9	2.2	1.3	25	2.9	1.9	26	1.5	12	3.8	1.4	1.3
11	3.1	1.7	1.2	19	2.1	1.2	13	1.4	10	2.6	1.6	e.90
12	3.4	e1.3	1.5	15	2.0	1.0	13	2.2	9.6	1.9	1.7	e.86
13	3.1	e1.2	1.2	18	2.3	.90	11	1.2	12	1.6	e1.4	1.5
14	2.5	e1.2	1.4	14	1.8	.92	8.4	5.6	8.2	1.8	e1.3	1.2
15	1.7	1.2	1.8	11	1.7	1.1	9.6	8.5	7.3	1.9	e1.3	.86
16	1.7	1.3	1.0	8.7	1.6	1.0	32	3.1	7.4	2.6	1.5	.83
17	1.3	.99	.98	7.6	2.5	2.7	24	7.2	6.6	1.9	1.4	e.88
18	1.2	2.0	1.1	5.5	1.5	2.1	14	5.0	6.0	2.1	1.4	e1.2
19	2.3	2.6	1.1	5.0	1.4	1.2	86	4.3	5.6	1.6	1.3	e1.6
20	6.9	2.6	9.1	3.6	1.5	.91	40	35	5.6	1.8	1.2	e1.8
21	5.9	2.0	13	3.0	1.2	.92	15	17	6.3	1.4	e1.0	e2.1
22	3.0	e1.3	1.8	2.7	1.2	1.1	7.7	7.4	4.7	1.5	e.96	e1.4
23	5.3	e1.2	1.4	3.9	1.3	1.2	5.3	213	4.3	1.4	e.93	e.86
24	1.8	e1.1	1.2	3.7	1.4	e1.0	4.0	131	3.9	1.2	1.0	e.94
25	1.8	.93	1.1	2.9	1.7	e1.6	2.6	56	3.6	1.2	1.1	e1.7
26	1.3	.86	1.3	2.9	1.6	e1.8	2.5	160	3.3	2.2	1.2	e.88
27	e1.3	1.0	.97	2.7	1.5	6.8	2.0	37	3.2	1.9	1.2	e.88
28	e1.2	1.1	.94	3.3	1.5	7.7	1.8	21	3.1	1.0	1.3	e.88
29	8.4	1.1	.89	2.6	1.5	6.6	1.8	16	2.7	1.0	1.5	e.80
30	19	e.96	1.1	2.5	---	3.1	2.9	44	3.0	.85	1.5	e2.0
31	17	---	1.2	2.8	---	1.9	---	99	---	1.1	1.7	---
TOTAL	142.4	65.74	58.18	1063.27	86.1	60.65	411.4	907.7	455.4	74.55	46.02	51.57
MEAN	4.59	2.19	1.88	34.3	2.97	1.96	13.7	29.3	15.2	2.40	1.48	1.72
MAX	20	7.8	13	415	14	7.7	86	213	158	11	4.5	5.7
MIN	1.2	.86	.89	.92	1.2	.90	1.5	1.2	2.7	.85	.93	.80
AC-FT	282	130	115	2110	171	120	816	1800	903	148	91	102
CFSM	.91	.44	.37	6.82	.59	.39	2.73	5.82	3.02	.48	.30	.34
IN.	1.05	.49	.43	7.86	.64	.45	3.04	6.71	3.37	.55	.34	.38

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1992, BY WATER YEAR (WY)

	MEAN	26.2	7.70	6.82	9.06	2.50	1.97	4.80	13.8	5.40	3.65	4.76	13.3
MAX	58.0	15.2	15.8	34.3	2.97	2.46	13.7	31.8	15.2	8.40	12.3	39.6	
(WY)	1990	1991	1982	1992	1992	1990	1992	1981	1992	1991	1989	1989	
MIN	4.59	2.19	1.69	1.47	1.92	1.47	1.32	1.42	1.16	1.45	1.03	1.72	
(WY)	1992	1992	1989	1989	1989	1982	1982	1989	1982	1982	1982	1992	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1981 - 1992

ANNUAL TOTAL	1607.02	3422.98	
ANNUAL MEAN	4.40	9.35	8.01
HIGHEST ANNUAL MEAN			9.35
LOWEST ANNUAL MEAN			6.17
HIGHEST DAILY MEAN	139	415	420
LOWEST DAILY MEAN	.70	.80	.70
ANNUAL SEVEN-DAY MINIMUM	.88	.99	.80
INSTANTANEOUS PEAK FLOW		2320	2320
INSTANTANEOUS PEAK STAGE		11.53	11.53
ANNUAL RUNOFF (AC-FT)	3190	6790	5800
ANNUAL RUNOFF (CFSM)	.88	1.86	1.59
ANNUAL RUNOFF (INCHES)	11.88	25.32	21.63
10 PERCENT EXCEEDS	8.3	14	13
50 PERCENT EXCEEDS	1.9	1.9	2.2
90 PERCENT EXCEEDS	1.0	1.0	1.1

## RIO GRANDE DE MANATI BASIN

50030700 RIO OROCOVIS NEAR OROCOVIS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'20", long 66°22'58", at flat low bridge about 300 ft (91 m) northwest of Highway 568, 1.0 mi (1.6 km) north of Orocovis plaza.

DRAINAGE AREA.--10.1 mi<sup>2</sup> (26.2 km<sup>2</sup>).

PERIOD OF RECORD.--Water year 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
OCT 1991											
10...	1300	6.4	316	8.2	24.0	10	7.9	84	15	K7200	900
DEC 16...	1100	4.5	229	8.3	20.5	1.7	8.3	99	27	K140	K200
FEB 1992											
26...	1145	8.3	284	8.1	22.5	3.0	8.2	98	16	230	220
MAY 29...	1010	24	235	7.4	22.5	2.7	8.0	92	<10	K7800	870
JUN 30...	0915	15	275	7.8	24.0	2.0	8.4	102	<10	K1900	K550
AUG 11...	0915	7.9	312	7.8	24.5	2.2	8.0	93	18	24000	360

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT 1991											
10...	130	5	33	12	13	0.5	1.7	120	<0.5	16	20
DEC 16...	--	--	--	--	--	--	--	140	--	--	--
FEB 1992											
26...	--	--	--	--	--	--	--	110	--	--	--
MAY 29...	90	0	22	8.6	12	0.5	2.0	82	<0.5	7.5	14
JUN 30...	--	--	--	--	--	--	--	120	--	--	--
AUG 11...	130	13	34	12	14	0.5	1.9	110	--	8.3	17

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
10...	<0.10	32	200	3.44	11	0.680	0.010	0.690	0.020	--
DEC 16...	--	--	--	--	1	0.350	0.010	0.360	0.030	5.6
FEB 1992										
26...	--	--	--	--	1	0.860	0.020	0.880	0.050	--
MAY 29...	0.10	30	145	9.26	17	0.830	0.020	0.850	0.060	--
JUN 30...	--	--	--	--	<1	0.600	0.010	0.610	0.050	0.35
AUG 11...	0.10	32	198	4.22	<1	0.640	0.010	0.650	0.030	--

K = non-ideal count

# RIO GRANDE DE MANATI BASIN

50030700 RIO OROCOVIS NEAR OROCOVIS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
10...	<0.20	--	--	0.070	<1	<100	50	<1	<1	10
DEC 16...	5.6	6.0	26	0.060	--	--	--	--	--	--
FEB 1992										
26...	<0.20	--	--	0.220	--	--	--	--	--	--
MAY 29...	<0.20	--	--	0.090	<1	<100	10	<1	<1	<10
JUN 30...	0.40	1.0	4.5	0.120	--	--	--	--	--	--
AUG 11...	<0.20	--	--	0.150	--	--	--	--	--	--

[illegible]



## RIO GRANDE DE MANATI BASIN

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR

LOCATION.--Lat 18°17'45", long 66°24'47", Hydrologic Unit 21010001, on right bank, 0.1 mi (0.2 km) downstream from Quebrada Perchas, 0.8 mi (1.3 km) upstream from Río Sana Muerto, and 2.2 mi (3.5 km) south of Morovis.

DRAINAGE AREA.--55.2 mi<sup>2</sup> (143.0 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 440 ft (134 m), from topographic map. Feb. 2, 1966 to Apr. 27, 1967, staff gage read twice daily.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Public water-supply pumpage, about 300 ft (91 m) above the station, influences low-flow discharges. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	211	26	27	37	e33	35	223	283	41	35	24
2	24	190	25	26	36	e30	143	289	191	41	32	21
3	22	114	26	25	35	e30	95	135	138	67	33	23
4	19	75	29	24	37	e30	62	92	122	43	63	26
5	20	57	30	2480	35	e29	42	70	113	41	69	42
6	21	53	28	1530	37	e28	38	187	99	39	119	45
7	34	58	26	246	74	e29	69	120	91	38	54	31
8	92	60	25	147	65	e30	73	76	92	54	42	27
9	48	49	27	116	44	e33	293	62	106	56	37	63
10	28	41	34	117	39	e35	220	55	145	42	36	29
11	23	35	29	e86	38	e28	101	49	124	39	34	22
12	23	32	27	e82	95	e27	70	47	92	42	35	21
13	21	32	25	e88	47	e26	58	48	91	39	32	20
14	20	32	25	e84	37	e25	48	46	87	54	30	19
15	19	34	25	e70	35	e25	57	66	71	41	46	19
16	18	31	25	e70	33	e25	180	54	68	48	34	19
17	17	30	25	e76	30	31	190	100	66	41	29	21
18	17	29	24	e62	31	49	129	156	62	40	28	22
19	49	28	24	e55	31	39	e580	233	59	35	26	29
20	44	28	43	e51	32	32	e450	305	58	35	119	69
21	26	28	176	e47	32	27	e200	248	56	33	97	31
22	25	33	69	e46	32	28	96	130	55	32	39	24
23	39	32	46	e44	e33	27	73	457	52	34	29	24
24	25	52	34	46	e32	24	62	599	50	43	27	23
25	23	38	30	44	e32	23	54	261	48	37	35	20
26	30	31	29	44	e33	22	50	474	46	34	27	20
27	20	28	33	41	e30	128	46	246	45	33	26	20
28	19	33	33	40	e33	62	43	165	45	32	24	17
29	49	29	31	41	e36	71	64	135	42	32	23	17
30	224	26	27	38	---	42	141	144	41	31	23	56
31	216	---	27	38	---	39	---	231	---	30	25	---
TOTAL	1279	1549	1083	5931	1141	1107	3762	5503	2638	1247	1308	844
MEAN	41.3	51.6	34.9	191	39.3	35.7	125	178	87.9	40.2	42.2	28.1
MAX	224	211	176	2480	95	128	580	599	283	67	119	69
MIN	17	26	24	24	30	22	35	46	41	30	23	17
AC-FT	2540	3070	2150	11760	2260	2200	7460	10920	5230	2470	2590	1670
CFSM	.75	.94	.63	3.47	.71	.65	2.27	3.22	1.59	.73	.76	.51
IN.	.86	1.04	.73	4.00	.77	.75	2.54	3.71	1.78	.84	.88	.57

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1992, BY WATER YEAR (WY)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	168	158	118	83.9	66.5	70.4	114	170	65.2	48.4	59.0	93.2																
MAX	1037	491	522	191	179	226	412	915	173	157	435	386																
(WY)	1971	1971	1966	1992	1969	1972	1969	1985	1987	1979	1979	1979																
MIN	24.0	28.3	27.9	24.7	23.4	12.7	10.6	23.6	16.9	18.5	9.70	25.0																
(WY)	1978	1974	1984	1984	1984	1984	1984	1977	1977	1977	1984	1977																

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1965 - 1992

ANNUAL TOTAL	19164	27392	
ANNUAL MEAN	52.5	74.8	102
HIGHEST ANNUAL MEAN			248
LOWEST ANNUAL MEAN			40.3
HIGHEST DAILY MEAN	605	Jul 16	17100
LOWEST DAILY MEAN	15	Sep 6	5.7
ANNUAL SEVEN-DAY MINIMUM	19	Aug 31	6.8
INSTANTANEOUS PEAK FLOW			48000
INSTANTANEOUS PEAK STAGE			17.89
INSTANTANEOUS LOW FLOW			4.4
ANNUAL RUNOFF (AC-FT)	38010	54330	73880
ANNUAL RUNOFF (CFSM)	.95	1.36	1.85
ANNUAL RUNOFF (INCHES)	12.91	18.46	25.10
10 PERCENT EXCEEDS	98	139	179

## RIO GRANDE DE MANATI BASIN

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD) UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 1991											
09...	1115	43	222	7.8	24.5	110	8.0	93	31	23000	9500
DEC											
12...	1415	25	298	8.5	24.5	5.5	8.3	98	15	K10	90
FEB 1992											
26...	0945	34	281	8.0	23.0	1.3	8.3	100	14	130	100
APR											
21...	0945	140	199	7.0	24.0	67	8.7	104	17	2800	2000
JUN											
30...	1105	40	250	8.3	24.0	1.5	7.5	99	<10	110	450
AUG											
11...	1125	33	230	8.2	27.0	3.1	7.0	86	17	2700	60

DATE	HARD- NESS TOTAL (MG/L AS CaCO3)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)
OCT 1991											
09...	83	6	20	8.1	11	0.5	2.4	79	<0.5	7.7	14
DEC											
12...	--	--	--	--	--	--	--	110	--	--	--
FEB 1992											
26...	--	--	--	--	--	--	--	110	--	--	--
APR											
21...	76	0	18	7.6	10	0.5	3.6	57	<0.5	11	16
JUN											
30...	--	--	--	--	--	--	--	120	--	--	--
AUG											
11...	120	3	29	12	14	0.6	2.1	120	--	7.4	17

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
09...	0.20	21	132	15.1	33	0.560	0.070	0.630	0.080	0.42
DEC										
12...	--	--	--	--	17	--	<0.010	0.360	0.020	--
FEB 1992										
26...	--	--	--	--	1	--	<0.010	0.300	0.020	--
APR										
21...	0.10	22	122	46.1	64	1.25	0.050	1.30	0.070	0.53
JUN										
30...	--	--	--	--	<1	--	<0.010	0.170	0.080	0.72
AUG										
11...	0.20	25	175	15.6	<1	--	<0.010	0.270	0.030	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE \_\_\_\_\_[illegible]

## RIO GRANDE DE MANATI BASIN

50032290 LAGO EL GUINEO AT DAMSITE, PR

LOCATION.--Lat 18°09'41", long 66°51'48", Hydrologic Unit 21010001, at damsite on Río Toro Negro, 3.0 mi (4.8 km) northwest from Villalba plaza and 1.9 mi (3.1 km) northeast of Cerro Maravillas. The reservoir itself fixes the territorial limits between the Municipality of Ciales and Orocovis.

DRAINAGE AREA.--1.64 mi<sup>2</sup> (4.25 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--May 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Guineo was completed in 1931. It provides a maximum storage of approximately 2,180 ac-ft (2.688 hm<sup>3</sup>) for power and irrigation. Waters are discharged through an outlet power tunnel into the Río Toro Negro and conveyed to the head water works of Toro Negro Hydroelectric Plant No.2, for energy generation at Toro Negro Hydroelectric plant No.1, and are discharged into the Guayabal Reservoir to be later used for irrigation at South Coast Irrigation System. The dam is rockfill with a vertical concrete corewall, rock toes, and riprap facing of upstream slope, with a total length of 565 ft (172 m), a maximum structural height of 125 ft (38 m) to top of corewall. At a maximum reservoir water surface elevation the uncontrolled morning-glory tunnel spillway crest has an elevation of 2,966 ft (904 m) above mean sea level and a design capacity of 7,000 ft<sup>3</sup>/s. The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,961.70 ft (902.73 m), Oct. 21, 1990; minimum elevation, 2,919.79 ft (899.95 m), May 27, 1988.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,961.11 ft (902.55 m), Jan. 6; minimum elevation, 2,941.60 ft (896.60 m), Jan. 3.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
2,872	0	2,943	1,029
2,919	361	2,950	1,308
2,925	491	2,961	1,852

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2949.48	2947.21	2946.06	2942.88	2952.29	2949.59	2952.14	2952.32	2960.80	2958.39	2954.16	2951.52
2	2949.20	2947.33	2945.67	2942.50	2952.39	2949.52	2952.88	2952.44	2960.20	A	2954.24	2951.31
3	2948.86	2947.41	2945.27	2942.06	2952.19	2949.58	2953.07	2952.54	2960.38	A	2953.80	2951.09
4	2948.46	2947.31	2945.04	2942.10	2952.06	2949.66	2953.17	2952.18	2960.33	A	2953.74	2950.77
5	2948.52	2947.21	2944.80	2954.57	2951.93	2949.72	2953.25	2951.92	2960.17	A	2954.21	2950.87
6	2948.57	2947.31	2944.48	2961.03	2953.03	2949.79	2952.97	2951.94	2959.97	A	2954.13	2950.93
7	2948.86	2947.23	2944.52	2960.40	2953.29	2949.86	2952.71	2951.81	2960.19	A	2953.90	2953.49
8	2948.72	2947.33	2944.56	2959.90	2953.04	2949.94	2952.77	2951.74	2960.41	A	2953.99	2953.41
9	2948.66	2947.54	2944.21	2959.38	2953.21	2950.09	2953.12	2951.83	2960.20	A	2954.15	2953.25
10	2948.32	2947.65	2944.23	2958.83	2953.03	2950.17	2952.99	2951.91	2960.00	A	2956.42	2953.09
11	2948.06	2947.73	2944.29	2958.34	2953.15	2950.23	2952.55	2951.38	2959.86	A	2956.34	2952.95
12	2947.49	2947.41	2943.91	A	2952.59	2950.14	2952.68	2951.58	2959.88	A	2956.24	2952.37
13	2946.92	2946.90	2943.96	A	2952.26	2949.90	2952.43	2951.70	2960.15	A	2956.10	2952.43
14	2946.76	2946.44	2944.00	A	2952.08	2949.94	2952.15	2952.20	2960.37	A	2955.98	2952.25
15	2946.44	2946.49	2944.02	A	2951.87	2950.00	2951.99	2952.12	2959.85	A	2955.50	2952.14
16	2946.52	2946.55	2944.04	A	2951.96	2949.84	2952.23	2952.47	2959.47	A	2955.58	2952.02
17	2946.60	2946.61	2944.11	A	2952.05	2949.94	2952.43	2952.64	2959.27	A	2955.42	2951.54
18	2946.72	2946.10	2944.13	A	2951.83	2949.98	2952.57	2952.34	2959.31	A	2955.25	2950.96
19	2946.80	2946.16	2944.17	A	2951.43	2950.03	2953.58	2952.10	2959.25	A	2954.85	2950.48
20	2946.88	2946.21	2944.34	A	2951.23	2950.12	2954.88	2950.83	2959.58	A	2954.65	2950.10
21	2947.00	2946.12	2944.43	A	2951.02	2950.19	2954.64	2950.57	2959.46	A	2954.53	2950.00
22	2947.04	2945.88	2944.47	A	2950.38	2950.25	2954.02	2950.35	2959.32	A	2954.05	2949.86
23	2946.74	2945.92	2944.50	A	2950.46	2950.31	2953.54	2956.76	2959.08	A	2953.61	2950.32
24	2946.46	2945.99	2944.54	2955.00	2949.92	2950.10	2953.24	2958.06	2959.01	A	2953.38	2950.48
25	2946.45	2945.86	2944.56	2955.19	2950.00	2950.15	2953.38	2959.10	2958.86	A	2953.22	2950.66
26	2946.52	2945.74	2944.60	2955.29	2950.11	2950.21	2953.52	2960.74	2958.66	A	2953.06	2950.82
27	2946.65	2945.84	2944.40	2954.85	2950.20	2950.16	2953.00	2960.43	2958.37	2954.39	2952.82	2950.94
28	2946.56	2945.93	2943.34	2954.47	2950.30	2950.25	2952.40	2960.03	2958.50	2954.10	2952.66	2951.28
29	2947.33	2945.97	2943.36	2953.87	2949.52	2950.61	2952.38	2959.85	2958.40	2954.21	2952.14	2951.50
30	2947.23	2946.01	2942.96	2953.17	---	2950.44	2952.40	2959.74	2958.48	2954.02	2952.22	2951.75
31	2947.25	---	2942.65	2952.83	---	2952.01	---	2960.80	---	2954.10	2951.72	---
MEAN	2947.49	2946.65	2944.31	---	2951.68	2950.09	2952.97	2954.08	2959.59	---	2954.26	2951.49
MAX	2949.48	2947.73	2946.06	---	2953.29	2952.01	2954.88	2960.80	2960.80	---	2956.42	2953.49
MIN	2946.44	2945.74	2942.65	---	2949.52	2949.52	2951.99	2950.35	2958.37	---	2951.72	2949.86

A No gage-height record.

## RIO GRANDE DE MANATI BASIN

50032590 LAGO DE MATRULLAS AT DAMSITE, PR

LOCATION.--Lat 18°12'46", long 66°28'50", Hydrologic Unit 21010001, in concrete house at damsite, and 5.8 mi (9.3 km) southwest of Orocovis.

DRAINAGE AREA.--4.46 mi<sup>2</sup> (11.55 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--May 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Matrullas was completed in 1934. The dam is an earthfill structure about 120 ft (37 m) height, a top width of 30 ft (9 m) and a length of 710 ft (216 m), and has a maximum storage capacity of about 4,274 ac-ft (5.220 hm<sup>3</sup>) at top of dam elevation. The Matrullas Dam is owned by the Puerto Rico Electric Power Authority and is part of the Toro Negro Hydroelectric Project; a project developed by the P.R.E.P.A. for the primary purpose of generating electric power. Discharges from the Power Plants are collected by the Jacaguas River which flows into Guayabal Dam, at which dam they are regulated for irrigation of lands served by the Juana Díaz Canal. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,413.56 ft (735.65 m), Jan. 6, 1992; minimum elevation, 2,392.81 ft (729.33 m), Sept. 10, 1989.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,413.56 ft (735.65 m), Jan. 6; minimum elevation, 2,408.23 ft (734.03 m), Oct. 19.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
2,338	2	2,399	1,845
2,360	302	2,415	2,945

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2409.81	2409.26	2408.84	2410.46	2408.80	2409.58	2409.88	2411.34	2412.46	2411.77	2411.77	2410.46
2	2409.60	2409.41	2408.69	2410.29	2408.81	2409.73	2410.20	2411.53	2411.96	2411.80	2411.81	2410.38
3	2409.37	2409.55	2408.57	2410.03	2408.85	2409.86	2410.64	2411.52	2411.90	2411.77	2411.70	2410.32
4	2409.13	2409.53	2408.51	2409.81	2408.87	2409.90	2410.82	2411.32	2411.89	2411.75	2411.66	2410.24
5	2409.15	2409.49	2408.43	2412.87	2408.86	2409.92	2410.97	2411.22	2411.90	2411.79	2411.70	2410.30
6	2409.25	2409.49	2408.33	2412.55	2409.40	2409.99	2410.86	2411.26	2411.88	2411.75	2411.73	2410.42
7	2409.52	2409.50	2408.39	2412.04	2409.74	2409.97	2410.98	2411.30	2411.95	2411.72	2411.74	2410.53
8	2409.80	2409.54	2408.48	2411.72	2409.76	2410.08	2411.02	2411.30	2411.95	2411.78	2411.75	2411.24
9	2409.92	2409.64	2408.33	2411.54	2409.93	2410.12	2411.24	2411.42	2411.88	2411.76	2411.76	2411.53
10	2410.06	2409.75	2408.32	2411.38	2409.88	2410.18	2411.20	2411.48	2411.86	2411.72	2411.77	2411.49
11	2410.03	2409.87	2408.40	2411.18	2409.78	2410.00	2410.98	2411.25	2411.88	A	2411.72	2411.44
12	2409.77	2409.75	2408.48	2411.45	2409.60	2409.76	2411.06	2411.58	2411.88	A	2411.70	2411.27
13	2409.41	2409.45	2408.55	2411.40	2409.40	2409.56	2410.95	2411.54	2411.90	A	2411.66	2411.29
14	2409.11	2409.07	2408.64	2411.20	2409.28	2409.27	2410.78	2411.69	2411.89	2411.75	2411.66	2411.24
15	2408.84	2408.92	2408.72	2410.96	2409.24	2409.23	2410.74	2411.64	2411.82	2411.74	2411.57	2411.17
16	2408.65	2408.99	2408.80	2410.92	2409.35	2409.06	2411.27	2411.91	2411.80	2411.73	2411.61	2411.11
17	2408.47	2409.07	2408.88	2410.98	2409.52	2409.00	2411.42	2412.38	2411.81	2411.73	2411.60	2410.99
18	2408.27	2409.05	2408.96	2410.78	2409.49	2409.00	2411.43	2411.80	2411.84	2411.76	2411.54	2410.76
19	2408.28	2409.13	2409.03	2410.58	2409.34	2408.98	2411.93	2411.64	2411.80	2411.79	2411.42	2410.46
20	2408.39	2409.03	2409.29	2410.56	2409.30	2408.94	2412.18	2411.56	2411.82	2411.78	2411.52	2410.19
21	2408.38	2408.89	2409.71	2410.42	2409.28	2409.03	2411.56	2411.50	2411.86	2411.74	2411.62	2410.02
22	2408.54	2408.65	2409.87	2410.27	2409.08	2409.18	2411.34	2411.56	2411.82	2411.67	2411.49	2409.95
23	2408.53	2408.66	2409.97	2410.12	2409.11	2409.30	2411.27	2412.80	2411.78	2411.69	2411.29	2410.01
24	2408.36	2408.77	2410.04	2409.98	2409.14	2409.26	2411.30	2412.48	2411.78	2411.67	2411.14	2410.15
25	2408.31	2408.69	2410.13	2409.88	2409.14	2409.16	2411.42	2412.28	2411.76	2411.73	2411.01	2410.14
26	2408.45	2408.61	2410.23	2410.02	2409.16	2409.05	2411.44	2412.51	2411.75	2411.76	2410.93	2410.03
27	2408.57	2408.61	2410.32	2409.94	2409.19	2409.00	2411.38	2412.12	2411.74	2411.77	2410.87	2410.07
28	2408.58	2408.70	2410.41	2409.78	2409.32	2409.18	2411.45	2411.91	2411.79	2411.69	2410.85	2410.09
29	2408.84	2408.68	2410.49	2409.58	2409.44	2409.52	2411.34	2411.86	2411.78	2411.66	2410.67	2410.09
30	2409.16	2408.76	2410.45	2409.28	---	2409.66	2411.81	2411.78	2411.78	2411.64	2410.66	2410.14
31	2409.21	---	2410.41	2409.06	---	2409.77	---	2412.07	---	2411.69	2410.57	---
MEAN	2409.02	2409.15	2409.18	2410.68	2409.31	2409.49	2411.15	2411.73	2411.86	---	2411.43	2410.58
MAX	2410.06	2409.87	2410.49	2412.87	2409.93	2410.18	2412.18	2412.80	2412.46	---	2411.81	2411.53
MIN	2408.27	2408.61	2408.32	2409.06	2408.80	2408.94	2409.88	2411.22	2411.74	---	2410.57	2409.95

A No gage-height record.

## RIO GRANDE DE MANATI BASIN

50034000 RIO BAUTA NEAR OROCOVIS, PR

LOCATION.--Lat 18°14'10", long 66°27'18", Hydrologic Unit 21010001, on left bank, at bridge on Highway 157 (12.1 km), and 4.2 mi (6.8 km) west of Orocovis.

DRAINAGE AREA.--16.7 mi<sup>2</sup> (43.3 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to April 1966 (annual low-flow measurements only), February to September 1969 (occasional measurements only), October 1969 to September 1982, October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 772.82 ft (235.556 m) above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	43	7.7	7.3	14	11	23	23	e160	19	15	7.7
2	11	32	7.9	7.2	14	9.8	35	56	e260	24	13	7.7
3	10	19	8.1	7.2	13	9.9	30	32	e110	20	12	7.8
4	9.9	14	8.3	7.2	13	9.7	17	23	e70	19	11	8.4
5	10	12	8.2	904	13	9.5	13	19	e56	18	14	8.7
6	9.9	13	7.8	922	34	9.3	13	23	e50	17	23	9.5
7	54	16	7.4	149	34	9.4	38	22	e45	17	14	8.9
8	30	24	7.4	66	32	10	23	17	e43	21	14	26
9	20	14	8.0	43	22	9.8	74	15	e43	19	13	23
10	16	12	8.3	36	18	13	71	14	e41	17	17	11
11	14	11	8.3	30	16	9.5	29	14	e52	17	17	9.0
12	12	10	7.8	30	15	8.8	19	37	e39	16	15	8.5
13	11	9.9	7.7	33	e28	8.6	15	32	e35	16	14	8.1
14	10	9.7	7.9	30	e18	8.4	13	59	e33	17	14	8.1
15	9.9	9.7	7.5	25	e15	8.3	27	94	e31	15	15	7.8
16	9.8	10	7.5	26	e14	8.1	99	48	e30	16	13	8.0
17	9.5	9.4	7.7	28	e13	11	89	135	e30	15	12	8.5
18	9.2	9.0	7.8	22	e12	11	53	94	e29	15	11	8.3
19	9.3	8.7	7.4	20	e12	9.4	276	177	29	15	11	8.1
20	10	8.5	17	18	e11	8.6	195	103	28	15	15	8.4
21	9.8	8.6	28	17	e11	8.3	101	68	28	14	21	8.8
22	13	8.8	11	17	e11	9.1	48	43	28	e13	12	8.2
23	14	8.6	9.3	16	e11	8.3	33	315	26	e16	10	8.2
24	11	8.6	8.5	17	e10	7.9	27	e671	24	e15	9.3	10
25	10	9.4	8.4	16	11	11	22	e200	23	e13	8.7	8.3
26	10	8.6	7.7	16	9.9	9.0	20	e410	23	e12	8.4	7.8
27	9.8	8.5	7.9	15	9.9	15	18	e220	22	e12	8.5	7.5
28	9.2	8.5	7.9	15	12	17	16	e110	21	e12	8.6	7.2
29	35	7.9	7.7	15	12	91	16	e70	20	e11	8.1	9.2
30	44	7.6	7.6	15	---	37	18	e60	19	e11	7.9	18
31	63	---	7.6	15	---	19	---	e50	---	e14	8.0	---
TOTAL	515.3	380.0	277.3	2584.9	458.8	425.7	1471	3254	1448	491	393.5	294.7
MEAN	16.6	12.7	8.95	83.4	15.8	13.7	49.0	105	48.3	15.8	12.7	9.82
MAX	63	43	28	922	34	91	276	671	260	24	23	26
MIN	9.2	7.6	7.4	7.2	9.9	7.9	13	14	19	11	7.9	7.2
AC-FT	1020	754	550	5130	910	844	2920	6450	2870	974	781	585
CFSM	1.00	.76	.54	4.99	.95	.82	2.94	6.29	2.89	.95	.76	.59
IN.	1.15	.85	.62	5.76	1.02	.95	3.28	7.25	3.23	1.09	.88	.66

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1992, BY WATER YEAR (WY)

	MEAN	99.3	59.2	29.8	20.9	14.1	16.3	27.2	49.8	20.4	17.1	22.7	54.3
MAX	392	205	108	83.4	30.9	59.9	80.2	179	78.6	104	152	149	
(WY)	1971	1971	1971	1992	1971	1972	1980	1981	1979	1979	1979	1979	
MIN	15.8	8.14	8.95	6.62	6.26	5.57	6.23	7.05	4.10	5.22	6.76	9.82	
(WY)	1976	1974	1992	1973	1977	1977	1977	1973	1977	1974	1976	1992	

## SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1969 - 1992

ANNUAL TOTAL	6282.0	11994.2	
ANNUAL MEAN	17.2	32.8	
HIGHEST ANNUAL MEAN			35.8
LOWEST ANNUAL MEAN			79.3
HIGHEST DAILY MEAN	362	Jan 16	1979
LOWEST DAILY MEAN	6.1	Jul 7	1977
ANNUAL SEVEN-DAY MINIMUM	7.1	Jul 1	1977
INSTANTANEOUS PEAK FLOW		922	Jan 6
INSTANTANEOUS PEAK FLOW		7.2	Jan 2
INSTANTANEOUS PEAK FLOW		7.4	Dec 29
INSTANTANEOUS LOW FLOW		5920	Jan 5
ANNUAL RUNOFF (AC-FT)	12460	15.72	Jan 5
ANNUAL RUNOFF (CFSM)	1.03	7.2	Dec 7
ANNUAL RUNOFF (INCHES)	13.99	2.8	
10 PERCENT EXCEEDS	26	25950	
50 PERCENT EXCEEDS	11	2.14	
		26.72	
		52	
		66	
		13	

## RIO GRANDE DE MANATI BASIN

50035000 RIO GRANDE DE MANATI AT CIALES, PR

LOCATION.--Lat 18°19'26", long 66°27'36", Hydrologic Unit 21010001, on left bank, 1.6 mi (2.6 km) upstream from Hwy 145 bridge, 0.8 mi (1.3 km) downstream from Quebrada Saliente, 0.9 mi (1.4 km) upstream from Quebrada Cojo Vales, and 1.2 mi (1.9 km) southeast of Ciales.

DRAINAGE AREA.--128 mi<sup>2</sup> (332 km<sup>2</sup>), excludes 6.0 mi<sup>2</sup> (15.5 km<sup>2</sup>), the runoff from which is diverted through El Guineo and de Matrullas reservoirs.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1946 to September 1953, May 1956 to December 1957 (unpublished, available in files of Caribbean District Office and in the National Water Data Storage and Retrieval System, Washington, D.C.); February 1959 to September 1960 (monthly discharge measurements only); October 1960 to current year. Equivalent record from January 1971 to December 1972 published as 50035200 Rio Grande de Manatí at Highway 145 at Ciales at site 1.6 mi (2.6 km) downstream, drainage area 132 mi<sup>2</sup> (342 km<sup>2</sup>).

GAGE.--Water-stage recorder. Elevation of gage is 140 ft (43 m), from topographic map. Prior to Apr. 1, 1962, staff gage, read twice daily, at site 100 ft (30 m) upstream at same datum. January 1971 to December 1972 at site 1.6 mi (2.6 km) downstream at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate gage heights of major floods, pointed out by local residents are as follows: August 1899, 50 ft (15 m), September 1928, 36 ft (11 m), and September 1932, 34 ft (10 m) at site 1.6 mi (2.6 km) upstream.

## DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	DAILY MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	e1300	54	52	79	61	e150	e180	1710	102	114	93
2	64	e940	54	51	76	57	e84	e1600	965	102	81	90
3	61	e320	54	48	75	56	e580	e410	480	143	78	88
4	55	e210	54	45	78	56	e130	e220	376	105	112	105
5	52	e160	54	5110	79	56	e88	e150	328	99	120	151
6	52	130	54	e5240	110	56	e74	316	284	98	216	155
7	59	119	52	e616	237	54	e84	198	275	95	108	153
8	272	148	52	e385	178	89	e110	137	272	122	86	173
9	129	116	52	265	134	98	e1000	109	263	131	79	237
10	78	94	61	235	111	124	e2200	104	326	102	86	124
11	74	80	55	193	100	92	e350	97	273	95	168	95
12	64	73	52	236	149	68	e200	e90	228	94	93	85
13	56	72	51	204	96	58	e140	e190	213	93	80	75
14	52	67	50	195	88	55	99	e130	204	122	72	72
15	50	67	49	160	82	54	90	e190	181	101	96	72
16	47	68	47	153	77	54	e130	e160	169	102	88	70
17	45	66	47	235	72	61	e390	e250	149	99	76	84
18	43	62	47	158	71	100	e180	e660	142	94	69	92
19	106	60	47	132	71	81	e450	e500	145	91	69	118
20	116	57	66	119	69	67	e1800	e1200	141	91	169	238
21	70	57	302	110	69	58	e640	e880	145	90	248	105
22	56	55	122	105	69	57	e240	e390	144	86	196	83
23	85	54	80	100	67	61	e160	e1400	131	83	119	76
24	60	73	64	97	64	55	e130	e4500	129	101	108	107
25	63	69	57	97	64	57	e120	e2300	125	89	122	86
26	59	62	52	97	65	117	e110	e3500	118	77	103	77
27	54	57	52	88	65	324	e100	1030	117	75	138	73
28	47	57	53	83	64	265	e96	529	114	75	110	75
29	206	57	59	81	62	e200	e94	373	109	70	99	83
30	e1100	56	53	81	---	e320	e170	208	106	67	93	106
31	e920	---	52	81	---	e110	---	894	---	67	93	---
TOTAL	4261	4806	1998	14852	2621	3021	10189	22895	8362	2961	3489	3241
MEAN	137	160	64.5	479	90.4	97.5	340	739	279	95.5	113	108
MAX	1100	1300	302	5240	237	324	2200	4500	1710	143	248	238
MIN	43	54	47	45	62	54	74	90	106	67	69	70
AC-FT	8450	9530	3960	29460	5200	5990	20210	45410	16590	5870	6920	6430
CFSM	1.07	1.25	.50	3.74	.71	.76	2.65	5.77	2.18	.75	.88	.84
IN.	1.24	1.40	.58	4.32	.76	.88	2.96	6.65	2.43	.86	1.01	.94
e Estimated												

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1992, BY WATER YEAR (WY)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
MEAN	482	382	276	174	138	151	283	472	162	110	154	286
MAX	2422	1006	1296	479	424	477	1174	2293	458	438	1212	994
(WY)	1971	1971	1966	1992	1969	1969	1969	1985	1979	1979	1979	1979
MIN	97.8	67.6	64.5	64.1	47.9	36.5	28.5	71.4	40.2	40.2	33.6	77.7
(WY)	1987	1974	1992	1984	1984	1984	1984	1989	1977	1974	1984	1977

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1961 - 1992
ANNUAL TOTAL	48803	82696	
ANNUAL MEAN	134	226	256
HIGHEST ANNUAL MEAN			520
LOWEST ANNUAL MEAN			118
HIGHEST DAILY MEAN	2030	5240	42700
LOWEST DAILY MEAN	43	43	5.0
ANNUAL SEVEN-DAY MINIMUM	47	48	22
INSTANTANEOUS PEAK FLOW		38100	125000
INSTANTANEOUS PEAK STAGE		14.41	24.00
INSTANTANEOUS LOW FLOW		43	20
ANNUAL RUNOFF (AC-FT)	96800	164000	185800
ANNUAL RUNOFF (CFSM)	1.04	1.77	2.00
ANNUAL RUNOFF (INCHES)	14.18	24.03	27.22
10 PERCENT EXCEEDS	217	327	458
50 PERCENT EXCEEDS	81	96	118
90 PERCENT EXCEEDS	53	54	55

## RIO GRANDE DE MANATI BASIN

50035500 RIO GRANDE DE MANATI AT HIGHWAY 149 AT CIALES, RP

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'46", long 66°28'06", at bridge on Highway 149, about 800 ft (244 m) upstream from confluence with Río Cialitos, 0.5 mi (0.8 km) north of Ciales plaza.

DRAINAGE AREA.--136 mi<sup>2</sup> (352 km<sup>2</sup>) this excludes the 6 mi<sup>2</sup> (15.5 km<sup>2</sup>) upstream from Lago El Guineo and Lago de Matrullas, flow from which is diverted to Río Jacaguas.

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991											
21...	1130	96	240	7.0	26.0	17	5.5	67	<10	53000	410
DEC											
30...	1055	47	265	8.5	24.0	4.9	<24.0	98	<10	K72	K170
FEB 1992											
20...	1005	55	250	8.1	25.0	6.4	7.6	84	<10	36	K100
MAY											
15...	1045	E400	134	6.8	23.5	57	6.8	79	22	430	210
JUL											
02...	0930	93	330	8.0	29.0	2.2	6.6	74	<10	200	30
AUG											
29...	1145	87	443	7.5	29.0	0.50	7.8	86	<10	200	K150

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
21...	95	24	8.6	13	0.6	1.9	100	<0.5	9.7	10
DEC										
30...	--	--	--	--	--	--	110	--	--	--
FEB 1992										
20...	--	--	--	--	--	--	95	--	--	--
MAY										
15...	64	16	5.8	9.1	0.5	1.7	64	<0.5	7.2	12
JUL										
02...	--	--	--	--	--	--	87	--	--	--
AUG										
29...	91	23	8.1	12	0.5	1.9	90	--	9.0	14

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
21...	0.30	22	149	38.9	3	0.360	0.020	0.380	0.040	0.26
DEC										
30...	--	--	--	--	1	0.200	0.010	0.210	0.020	--
FEB 1992										
20...	--	--	--	--	12	--	<0.010	0.200	0.010	--
MAY										
15...	0.20	20	110	--	24	0.190	0.050	0.240	0.080	--
JUL										
02...	--	--	--	--	8	0.480	0.010	0.490	0.030	0.57
AUG										
29...	0.10	24	150	35.2	11	0.240	0.010	0.250	0.040	--

K = non-ideal count  
E = estimate



## RIO GRANDE DE MANATI BASIN

50035500 RIO GRANDE DE MANATI AT HIGHWAY 149 AT CIALES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
21...	0.30	0.68	3.0	0.110	<1	<100	<10	<1	1	10
DEC 30...	<0.20	--	--	0.070	--	--	--	--	--	--
FEB 1992										
20...	<0.20	--	--	0.050	--	--	--	--	--	--
MAY 15...	<0.20	--	--	0.140	<1	<100	20	<1	<1	10
JUL 02...	0.30	0.38	1.7	0.070	--	--	--	--	--	--
AUG 29...	<0.20	--	--	0.050	--	--	--	--	--	--

[illegible]

## RIO GRANDE DE MANATI BASIN

50035950 RIO CIALITOS AT HIGHWAY 649 AT CIALES, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'18", long 66°28'28", 100 ft (30 m) upstream from bridge on Highway 649, 0.7 mi (1.1 km) upstream from mouth, and about 0.4 mi (0.6 km) west of Ciales plaza.

DRAINAGE AREA.--17.0 mi<sup>2</sup> (44.0 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1969-71, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991											
21...	1240	4.0	194	7.2	23.5	82	6.0	70	22	K60000	6800
DEC											
30...	1200	0.70	232	8.4	21.0	2.4	9.4	109	<10	K850	340
FEB 1992											
20...	1110	3.0	236	8.1	22.5	1.7	8.8	101	<10	330	520
MAY											
15...	1245	3.6	225	7.1	26.0	2.0	7.8	95	<10	350	220
JUL											
02...	1045	5.0	420	8.3	26.5	13	8.5	86	<10	460	K870
AUG											
29...	1300	3.6	213	7.7	26.5	12	8.2	81	<10	K900	250

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LILITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 1991										
21...	75	22	4.8	9.7	0.5	2.8	70	<0.5	9.0	9.7
DEC										
30...	--	--	--	--	--	--	100	--	--	--
FEB 1992										
20...	--	--	--	--	--	--	100	--	--	--
MAY										
15...	80	23	5.5	9.8	0.5	2.0	75	<0.5	6.3	12
JUL										
02...	--	--	--	--	--	--	98	--	--	--
AUG										
29...	84	24	5.8	9.9	0.5	1.8	81	--	6.2	11

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
21...	<0.10	19	119	1.29	49	1.34	0.060	1.40	0.080	0.62
DEC										
30...	--	--	--	--	1	0.540	0.010	0.550	0.010	--
FEB 1992										
20...	--	--	--	--	9	--	<0.010	0.480	0.020	--
MAY										
15...	0.20	27	135	1.31	3	0.530	0.010	0.540	0.030	--
JUL										
02...	--	--	--	--	19	0.420	0.010	0.430	0.020	--
AUG										
29...	0.10	25	137	1.33	16	0.590	0.010	0.600	0.050	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

ANNUAL TOTAL	79921		116542				
ANNUAL MEAN	219		318		381		
HIGHEST ANNUAL MEAN					756		1971
LOWEST ANNUAL MEAN					172		1974
HIGHEST DAILY MEAN	3020	Jul 16	8410	Jan 6	55900	May 18	1985
LOWEST DAILY MEAN	80	Oct 18	69	Sep 16	34	May 12	1984
ANNUAL SEVEN-DAY MINIMUM	86	Dec 14	80	Sep 13	38	May 7	1984
INSTANTANEOUS PEAK FLOW			13600	May 24	97200	Oct 7	1985
INSTANTANEOUS PEAK STAGE			28.61	May 24	33.79	Oct 7	1985
INSTANTANEOUS LOW FLOW			43	Jan 16	33	May 12	1984
ANNUAL RUNOFF (AC-FT)	158500		231200		276000		
ANNUAL RUNOFF (CFSM)	1.11		1.62		1.93		
ANNUAL RUNOFF (INCHES)	15.09		22.01		26.28		

## RIO GRANDE DE MANATI BASIN

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR--Continued  
(National stream-quality accounting network station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCOCI, FECAL, (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT 1991											
04...	0950	108	309	7.6	27.5	15	7.0	21000	K1500	130	40
DEC											
31...	0920	90	328	7.7	23.0	--	3.8	4700	K11000	--	--
FEB 1992											
25...	1025	100	325	7.5	25.0	6.3	8.0	3500	4700	140	44
APR											
22...	1000	370	280	6.7	25.0	55	6.3	4600	3600	100	27
JUN											
23...	1005	186	286	7.2	28.0	10	5.2	K18000	2100	120	35
AUG											
10...	0935	108	302	7.2	27.0	7.6	5.4	27000	1700	130	38

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 1991											
04...	7.6	11	0.4	1.8	130	9.3	12	0.10	20	187	183
DEC											
31...	8.2	11	0.4	1.7	140	8.2	13	0.10	20	178	190
FEB 1992											
25...	8.4	12	0.4	1.9	140	14	17	<0.10	16	189	200
APR											
22...	8.6	8.5	0.4	2.1	130	15	8.7	<0.10	28	166	142
JUN											
23...	7.8	11	0.4	2.0	110	7.4	14	0.10	20	170	165
AUG											
10...	8.0	11	0.4	2.5	120	6.8	15	0.10	20	174	180

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	BARIUM, DIS-SOLVED (UG/L AS BA)
OCT 1991											
04...	54.5	0.640	0.030	0.04	0.60	0.200	0.130	0.120	0.37	20	40
DEC											
31...	46.2	0.580	0.090	0.12	0.50	0.140	0.140	0.090	0.28	--	--
FEB 1992											
25...	51.0	0.500	0.030	0.04	0.40	0.100	0.060	0.060	0.18	<10	43
APR											
22...	166	0.970	0.040	0.05	<0.20	0.040	0.040	0.040	0.12	--	--
JUN											
23...	85.4	0.260	0.070	0.09	0.30	0.090	0.080	0.090	0.28	10	41
AUG											
10...	52.5	0.480	0.400	0.52	0.60	0.130	0.090	0.070	0.21	20	48

K = non-ideal count

## RIO GRANDE DE MANATI BASIN

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR--Continued  
(National stream-quality accounting network station)

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
OCT 1991										
04...	<3	14	<4	25	<10	1	<1	<1.0	190	8
DEC										
31...	--	--	--	--	--	--	--	--	--	--
FEB 1992										
25...	<3	<3	4	27	<10	<1	<1	<1.0	210	<6
APR										
22...	--	--	--	--	--	--	--	--	--	--
JUN										
23...	<3	9	<4	27	<10	1	<1	<1.0	170	<6
AUG										
10...	<3	12	<4	25	<10	<1	<1	<1.0	190	9

## RIO GRANDE DE MANATI BASIN

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR--Continued  
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
04...	0950	108	86	25	96
DEC 1992					
31...	0920	90	65	16	93
FEB					
25...	1025	100	68	18	86
APR					
22...	1000	370	123	123	91
JUN					
23...	1005	186	35	18	89
AUG					
10...	0935	108	38	11	87

## PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1992										
23...	1005	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1992									
23...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1992									
23...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01

## LAGUNA TORTUGUERO BASIN

50038200 LAGUNA TORTUGUERO OUTLET NEAR VEGA BAJA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°28'29", long 66°26'50", at bridge on Highway 686, 4.2 mi (6.8 km) northeast of Manatí, and 4.4 mi (7.1 km) northwest of Vega Baja plaza.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1964-66, 1969-71, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3
OCT 1991										
10...	1600	17	1400	8.2	30.0	8.3	38	K30	23	98
DEC										
06...	0840	15	1480	7.7	25.5	6.9	34	K12	K40	120
FEB 1992										
21...	1015	8.8	1370	7.9	26.0	6.9	32	K4	K16	120
APR										
13...	1000	6.0	1520	7.7	27.5	6.6	40	K56	310	110
JUN										
09...	0835	17	1400	7.9	29.5	6.4	36	10	50	100
AUG										
14...	0745	2.8	1380	7.1	29.0	3.8	31	430	110	100

DATE	SULFIDE TOTAL (MG/L AS S)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)
OCT 1991										
10...	<0.5	2	0.390	0.010	0.400	0.230	0.67	0.90	1.3	5.8
DEC										
06...	--	10	0.540	0.020	0.560	0.360	0.74	1.1	1.7	7.3
FEB 1992										
21...	--	6	0.460	0.020	0.480	0.240	0.56	0.80	1.3	5.7
APR										
13...	<0.5	22	0.370	0.010	0.380	0.260	0.84	1.1	1.5	6.6
JUN										
09...	--	8	0.310	0.010	0.320	0.160	0.74	0.90	1.2	5.4
AUG										
14...	--	6	0.220	0.010	0.230	0.230	0.87	1.1	1.3	5.9

DATE	PHOS- PHORUS TOTAL (MG/L AS P)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1991									
10...	0.010	150	10	<10	<10	<10	<0.010	3	0.10
DEC									
06...	<0.010	--	--	--	--	--	--	--	--
FEB 1992									
21...	<0.010	--	--	--	--	--	--	--	--
APR									
13...	0.010	90	30	70	10	<10	<0.010	2	0.09
JUN									
09...	<0.010	--	--	--	--	--	--	--	--
AUG									
14...	<0.010	--	--	--	--	--	--	--	--

K = non-ideal count





## RIO CIBUCO BASIN

50038320 RIO CIBUCO BELOW COROZAL, PR

LOCATION.--Lat 18°21'13", long 66°20'07", Hydrologic Unit 21010001, on right bank, 150 ft (46 m) downstream from Río Corozal, and 1.4 mi (2.3 km) northwest of Corozal.

DRAINAGE AREA.--15.1 mi<sup>2</sup> (39.1 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1969 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 195 ft (59 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	164	11	9.9	11	9.2	17	113	18	7.9	10	7.6
2	8.0	84	12	10	11	9.2	22	91	17	7.7	12	9.1
3	7.2	55	13	10	27	9.0	17	23	16	7.8	12	11
4	8.8	50	13	9.9	16	9.3	12	14	14	7.7	147	12
5	12	48	11	1260	13	9.8	12	12	13	8.2	61	19
6	8.8	36	10	278	12	8.9	12	56	13	7.5	46	20
7	7.4	24	10	58	11	9.2	18	18	13	7.5	20	14
8	26	21	11	30	11	15	14	13	14	16	15	13
9	19	16	14	25	9.3	11	12	11	15	16	13	12
10	11	14	13	38	9.9	9.6	14	11	17	12	11	11
11	9.0	13	10	28	10	8.8	12	11	15	12	9.9	10
12	8.2	14	10	27	15	8.5	11	10	14	11	9.4	10
13	7.2	14	9.8	33	11	7.7	11	10	13	15	9.6	9.4
14	7.3	12	12	27	11	7.1	11	9.5	13	24	21	10
15	6.4	12	9.4	23	12	8.0	11	9.9	13	15	13	10
16	4.9	13	11	39	11	7.3	9.6	20	12	13	14	11
17	4.6	12	9.9	36	11	9.3	10	11	12	13	9.6	13
18	4.6	11	9.3	25	10	13	9.6	15	11	12	9.3	12
19	10	11	9.2	22	11	12	9.4	106	11	18	8.8	77
20	8.9	12	21	19	11	8.3	9.4	38	9.1	14	15	59
21	6.2	14	18	16	11	7.7	9.1	83	9.5	12	11	19
22	7.4	16	12	17	12	8.0	8.8	36	9.7	11	9.1	13
23	11	14	11	16	10	8.2	8.9	92	9.4	11	8.6	16
24	7.0	36	11	15	11	7.2	9.2	120	8.8	15	7.9	11
25	79	16	10	13	12	7.3	8.9	40	8.5	11	8.2	16
26	21	13	10	13	12	6.9	8.9	89	8.5	10	8.8	12
27	13	13	11	12	11	133	9.0	60	8.2	9.5	9.1	9.4
28	15	21	13	14	10	45	8.7	34	8.2	9.8	8.6	9.0
29	159	13	13	12	9.8	29	9.6	30	8.1	11	9.0	8.6
30	153	12	12	12	---	18	31	23	8.1	10	8.0	9.6
31	109	---	11	11	---	20	---	20	---	10	9.8	---
TOTAL	769.9	804	361.6	2158.8	343.0	480.5	366.1	1229.4	360.1	365.6	564.7	473.7
MEAN	24.8	26.8	11.7	69.6	11.8	15.5	12.2	39.7	12.0	11.8	18.2	15.8
MAX	159	164	21	1260	27	133	31	120	18	24	147	77
MIN	4.6	11	9.2	9.9	9.3	6.9	8.7	9.5	8.1	7.5	7.9	7.6
AC-FT	1530	1590	717	4280	680	953	726	2440	714	725	1120	940
CFSM	1.64	1.77	.77	4.61	.78	1.03	.81	2.63	.79	.78	1.21	1.05
IN.	1.90	1.98	.89	5.32	.85	1.18	.90	3.03	.89	.90	1.39	1.17

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1992, BY WATER YEAR (WY)

	MEAN	43.6	46.6	37.1	25.7	22.0	23.7	33.6	46.2	15.2	11.9	17.1	26.5
MAX	135	155	169	69.6	51.3	65.1	111	157	44.4	34.6	50.8	73.2	
(WY)	1991	1971	1971	1992	1988	1981	1973	1986	1987	1979	1979	1979	
MIN	8.05	8.15	6.86	8.36	8.11	4.36	3.32	3.20	2.26	2.93	3.44	6.54	
(WY)	1979	1974	1979	1978	1984	1984	1984	1977	1977	1977	1978	1978	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1969 - 1992

ANNUAL TOTAL	7238.0	8277.4	
ANNUAL MEAN	19.8	22.6	29.2
HIGHEST ANNUAL MEAN			56.5
LOWEST ANNUAL MEAN			13.6
HIGHEST DAILY MEAN	290	1260	2370
LOWEST DAILY MEAN	4.6	4.6	1.3
ANNUAL SEVEN-DAY MINIMUM	5.6	6.2	1.4
INSTANTANEOUS PEAK FLOW		11900	13600
INSTANTANEOUS PEAK STAGE		19.32	19.80
INSTANTANEOUS LOW FLOW		3.8	
ANNUAL RUNOFF (AC-FT)	14360	16420	21180
ANNUAL RUNOFF (CFSM)	1.31	1.50	1.94
ANNUAL RUNOFF (INCHES)	17.83	20.39	26.31
10 PERCENT EXCEEDS	32	35	50
50 PERCENT EXCEEDS	13	12	13
90 PERCENT EXCEEDS	6.8	8.2	5.9

## RIO CIBUCO BASIN

50038320 RIO CIBUCO BELOW COROZAL, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-76, 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991										
17...	1015	4.6	426	7.9	25.5	3.0	7.6	14	410	280
DEC 09...	1345	15	367	8.0	24.0	9.6	7.9	19	K80000	30000
FEB 1992										
26...	1025	10	360	7.7	25.0	1.1	8.6	18	6900	870
JUN 22...	1100	10	366	7.8	27.5	1.8	7.5	<10	2400	K210
AUG 14...	0835	11	365	7.4	25.0	1.5	6.2	<10	8700	740

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
17...	160	41	13	27	0.9	4.4	130	<0.5	17	30
DEC 09...	--	--	--	--	--	--	110	--	--	--
FEB 1992										
26...	--	--	--	--	--	--	120	--	--	--
JUN 22...	140	36	12	18	0.7	3.2	120	<0.5	19	29
AUG 14...	140	35	12	18	0.7	3.5	120	--	16	26

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
17...	0.10	33	243	3.06	<1	3.71	0.090	3.80	0.150	0.45
DEC 09...	--	--	--	--	24	3.67	0.030	3.70	0.040	0.36
FEB 1992										
26...	--	--	--	--	1	2.78	0.020	2.80	0.030	0.17
JUN 22...	0.20	29	218	6.07	4	2.28	0.020	2.30	0.050	0.35
AUG 14...	0.20	32	220	6.53	2	0.990	0.110	1.10	0.090	0.21

K = non-ideal count

## RIO CIBUCO BASIN

50038320 RIO CIBUCO BELOW COROZAL, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991 17...	0.60	4.4	19	1.00	<1	<100	40	<1	<1	<10
DEC 09...	0.40	4.1	18	0.810	--	--	--	--	--	--
FEB 1992 26...	0.20	3.0	13	0.540	--	--	--	--	--	--
JUN 22...	0.40	2.7	12	0.520	<1	<100	30	<1	<1	<10
AUG 14...	0.30	1.4	6.2	0.370	--	--	--	--	--	--

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RIO CIBUCO BASIN

111

50039500 RIO CIBUCO AT VEGA BAJA, PR

LOCATION.--Lat 18°26'53", long 66°22'29", Hydrologic Unit 21010002, on left bank, at bridge on Hwy 2, 0.6 mi (1.0 km) downstream from Río Indio, and 0.8 mi (1.3 km) east of Vega Baja.

DRAINAGE AREA.--99.1 mi<sup>2</sup> (256.7 km<sup>2</sup>), of which 25.4 mi<sup>2</sup> (65.8 km<sup>2</sup>), does not contribute directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 7.79 ft (2.374 m) above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 11, 1965 reached a stage of 26.2 ft (7.99 m), datum unknown, discharge about 28,000 ft<sup>3</sup>/s (793 m<sup>3</sup>/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	280	32	34	42	28	120	91	282	29	24	25
2	28	424	32	32	42	26	45	630	222	27	23	e25
3	23	174	37	31	43	28	166	115	155	29	26	e29
4	20	129	52	30	127	29	49	52	103	28	187	e31
5	26	136	42	381	58	26	34	34	74	27	312	e42
6	32	99	38	2930	45	25	31	122	61	28	314	e45
7	20	66	36	355	43	23	46	74	70	25	99	e35
8	22	58	43	201	42	23	53	37	64	35	70	e31
9	73	45	46	138	38	43	43	28	67	78	71	e30
10	30	37	65	205	36	27	51	25	68	52	62	31
11	22	31	44	156	36	24	46	23	75	40	43	33
12	20	28	40	113	41	23	34	21	57	37	36	30
13	18	29	39	120	37	22	31	20	48	43	37	29
14	17	28	45	100	35	22	29	20	43	92	32	28
15	17	26	43	83	35	23	26	19	40	98	71	27
16	17	25	36	78	35	22	26	33	39	58	42	28
17	15	26	38	199	32	25	29	61	38	50	35	28
18	16	24	35	106	30	38	28	39	38	42	30	40
19	22	22	33	78	31	38	58	191	37	71	27	77
20	30	23	37	68	31	30	31	363	36	107	26	1210
21	22	26	140	64	31	25	29	250	35	41	60	186
22	18	74	58	60	34	24	25	307	36	32	31	79
23	28	32	46	58	32	23	25	240	35	30	27	64
24	26	132	41	54	29	24	23	642	33	44	25	77
25	43	53	38	54	31	22	23	252	31	48	29	66
26	134	34	36	58	30	22	23	382	29	29	28	100
27	33	31	36	52	31	128	23	e490	28	27	28	47
28	43	29	42	48	30	296	23	e250	31	31	25	38
29	365	51	51	49	29	106	28	e163	28	27	25	34
30	785	34	39	45	---	63	136	158	28	25	26	32
31	321	---	36	43	---	116	---	380	---	24	32	---
TOTAL	2326	2206	1376	6023	1136	1394	1334	5512	1931	1354	1903	2577
MEAN	75.0	73.5	44.4	194	39.2	45.0	44.5	178	64.4	43.7	61.4	85.9
MAX	785	424	140	2930	127	296	166	642	282	107	314	1210
MIN	15	22	32	30	29	22	23	19	28	24	23	25
AC-FT	4610	4380	2730	11950	2250	2760	2650	10930	3830	2690	3770	5110
CFSM	.76	.74	.45	1.96	.40	.45	.45	1.79	.65	.44	.62	.87
IN.	.87	.83	.52	2.26	.43	.52	.50	2.07	.72	.51	.71	.97

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1992, BY WATER YEAR (WY)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	171	189	184	96.5	92.3	95.9	160	210	76.9	53.9	85.3	121								
MAX	559	523	1316	209	190	339	671	655	245	162	461	450								
(WY)	1986	1980	1982	1988	1988	1990	1987	1985	1987	1979	1979	1979								
MIN	45.9	40.0	30.5	36.3	32.6	24.3	16.2	24.7	12.8	15.5	21.2	27.3								
(WY)	1974	1974	1979	1984	1977	1984	1984	1977	1977	1977	1978	1991								

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1973 - 1992

	1991	1992	1973-1992
ANNUAL TOTAL	29965	29072	
ANNUAL MEAN	82.1	79.4	129
HIGHEST ANNUAL MEAN			236
LOWEST ANNUAL MEAN			49.3
HIGHEST DAILY MEAN	1030	2930	14600
LOWEST DAILY MEAN	15	15	7.4
ANNUAL SEVEN-DAY MINIMUM	17	17	8.5
INSTANTANEOUS PEAK FLOW		7710	34000
INSTANTANEOUS PEAK STAGE		16.67	19.10
INSTANTANEOUS LOW FLOW		14	6.1
ANNUAL RUNOFF (AC-FT)	59440	57660	93220
ANNUAL RUNOFF (CFSM)	.83	.80	1.30
ANNUAL RUNOFF (INCHES)	11.25	10.91	17.64
10 PERCENT EXCEEDS	168	155	227
50 PERCENT EXCEEDS	48	36	60
90 PERCENT EXCEEDS	22	23	25

## RIO CIBUCO BASIN

50039500 RIO CIBUCO AT VEGA BAJA, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991										
01...	1630	44	427	8.0	26.5	1.7	7.1	<10	2400	2700
DEC										
06...	1145	37	445	7.9	25.0	3.4	6.6	11	390	330
FEB 1992										
21...	1245	35	404	7.9	24.5	2.1	8.0	<10	290	K150
JUN										
09...	1100	73	441	7.9	26.5	6.6	6.6	14	400	380
AUG										
14...	0940	32	451	7.5	28.0	2.7	3.8	<10	28000	400

DATE	HARD- NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)
OCT 1991										
01...	190	56	12	42	1	4.7	160	<0.5	11	32
DEC										
06...	--	--	--	--	--	--	170	--	--	--
FEB 1992										
21...	--	--	--	--	--	--	160	--	--	--
JUN										
09...	180	57	9.4	18	0.6	4.1	170	<0.5	16	26
AUG										
14...	190	58	10	18	0.6	4.0	180	--	17	27

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
01...	0.20	19	273	32.5	4	1.48	0.020	1.50	0.040	0.16
DEC										
06...	--	--	--	--	14	1.78	0.020	1.80	0.050	0.15
FEB 1992										
21...	--	--	--	--	7	1.75	0.050	1.80	0.020	0.18
JUN										
09...	0.10	19	252	49.3	<1	1.27	0.030	1.30	0.030	0.17
AUG										
14...	0.10	20	260	22.5	7	1.36	0.040	1.40	0.030	--

K = non-ideal count

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## RIO DE LA PLATA BASIN

50039990 LAGO CARITE AT GATE TOWER

LOCATION.--Lat 18°03'46", long 66°05'58", Hydrologic Unit 21010005, on top of a concrete tower at diversion tunnel on Carite Reservoir, 0.7 mi (1.1 km) northwest from Escuela Carite Chino, 1.2 mi (1.9 km) northeast from Central Hidroeléctrica de Carite Num. 1 and 1.8 mi (2.9 km) northeast from Escuela Segunda Unidad.

**DRAINAGE AREA.**--8.20 mi<sup>2</sup> (21.24 km<sup>2</sup>).

### ELEVATION RECORDS

PERIOD OF RECORD.--May 1989 to current year.

GAGE.--Water stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Carite Dam was completed in 1913. The operation of the reservoir is controlled by the utilization of water to meet the demands for domestic, industrial and agricultural purposes in the Guayama Area. The dam is an earthfill with crest elevation of 1,806 ft (550 m) above mean sea level, with a structural height of 104 ft (32 m) and a length of 500 ft (152 m). The dam has a capacity of approximately 11,310 acre-feet (13.9 hm<sup>3</sup>). The Dam is operated by the Puerto Rico Electric and Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 1,787.61 ft (544.86 m), Jan. 5, 1992; minimum elevation, 1,761.48 ft (536.90 m), June 13, 14, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum elevation 1,787.61 ft (544.86 m), Jan. 5; minimum elevation, 1,776.26 ft (541.40 m), Oct. 1.

### Capacity Table

(based on Data from Puerto Rico Electric Power Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
1,746	0	1,775	6,194
1,760	2,471	1,780	7,704
1,769	4,561	1,790	11,048

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1776.37	1776.89	1780.79	1780.98	1781.63	1781.38	1780.78	1779.20	1780.68	1781.53	1781.27	1779.87
2	1776.68	1776.86	1780.83	1780.96	1781.61	1781.38	1780.74	1779.15	1780.55	1781.53	1781.33	1779.75
3	1776.75	1776.82	1780.94	1780.94	1781.59	1781.35	1780.64	1779.03	1780.40	1781.52	1781.30	1779.65
4	1776.80	1776.81	1781.03	1780.90	1781.57	1781.33	1780.57	1778.90	1780.42	1781.52	1781.33	1779.56
5	1776.84	1776.77	1781.05	1786.50	1781.57	1781.31	1780.50	1778.77	1780.29	1781.53	1782.68	1779.40
6	1776.87	1776.84	1781.07	1782.49	1781.75	1781.30	1780.47	1778.69	1780.20	1781.52	1781.89	1779.36
7	1776.88	1777.73	1781.06	1781.93	1781.78	1781.31	1780.36	1778.68	1780.10	1781.50	1781.71	1779.21
8	1776.90	1778.84	1781.08	1781.84	1781.77	1781.26	1780.13	1778.50	1780.02	1781.55	1781.61	1779.10
9	1776.94	1779.20	1781.08	1781.86	1781.74	1781.24	1780.01	1778.49	1780.40	1781.54	1781.55	1779.04
10	1776.95	1779.32	1781.07	1781.87	1781.72	1781.20	1779.85	1778.35	1780.78	1781.52	1781.52	1778.94
11	1776.98	1779.32	1781.06	1781.86	1781.68	1781.17	1779.72	1778.26	1781.06	1781.58	1781.55	1778.80
12	1776.99	1779.32	1781.08	1781.84	1781.64	1781.14	1779.90	1778.13	1781.84	1781.55	1781.49	1778.64
13	1777.01	1779.27	1781.07	1781.82	1781.61	1781.10	1779.77	1778.04	1781.97	1781.47	1781.46	1778.52
14	1777.02	1779.27	1781.02	1781.82	1781.60	1781.10	1779.87	1778.25	1781.82	1781.46	1781.40	1778.37
15	1777.04	1779.29	1781.04	1781.80	1781.59	1781.07	1779.69	1778.17	1781.74	1781.50	1781.47	1778.18
16	1777.06	1779.28	1781.03	1781.80	1781.56	1781.04	1779.62	1778.20	1781.69	1781.47	1781.43	1778.16
17	1777.08	1779.26	1781.04	1781.79	1781.54	1781.08	1779.48	1778.08	1781.69	1781.52	1781.44	1778.17
18	1777.08	1779.23	1781.01	1781.77	1781.50	1781.06	1779.40	1777.97	1781.65	1781.49	1781.40	1778.14
19	1777.08	1779.20	1781.00	1781.75	1781.49	1781.02	1779.57	1777.63	1781.62	1781.48	1781.39	1778.40
20	1777.08	1779.20	1781.12	1781.74	1781.47	1780.98	1779.54	1777.47	1781.63	1781.49	1781.36	1781.03
21	1777.08	1779.19	1781.10	1781.72	1781.45	1780.96	1779.62	1777.27	1781.88	1781.47	1781.25	1781.44
22	1777.08	1779.25	1781.06	1781.71	1781.45	1780.92	1779.64	1777.14	1781.73	1781.53	1781.18	1781.30
23	1777.08	1779.28	1781.05	1781.69	1781.43	1780.92	1779.62	1778.93	1781.67	1781.49	1781.11	1781.18
24	1777.07	1779.79	1781.03	1781.72	1781.43	1780.86	1779.59	1779.99	1781.62	1781.46	1780.84	1781.04
25	1777.07	1779.86	1781.01	1781.73	1781.43	1780.82	1779.57	1780.48	1781.59	1781.45	1780.72	1781.00
26	1777.06	1779.90	1780.99	1781.72	1781.47	1780.78	1779.50	1781.39	1781.58	1781.42	1780.60	1

CAL YR 1991	MEAN 1777.75	MAX 1782.01	MIN 1772.93
WTR YR 1992	MEAN 1780.31	MAX 1786.50	MIN 1776.37

## RIO DE LA PLATA BASIN

## 50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR

LOCATION.--Lat 18°09'37", long 66°13'44", Hydrologic Unit 21010005, at upstream side of bridge on Highway 173, 0.4 mi (0.6 km) northeast of Proyecto La Plata, and 2.5 mi (4.0 km) upstream from Río Usabón.

DRAINAGE AREA.--63.0 mi<sup>2</sup> (163.2 km<sup>2</sup>), excludes 8.2 mi<sup>2</sup> (21.1 km<sup>2</sup>) upstream from Carite Reservoir, the flow of which is diverted to Río Guamaní.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1958 (occasional measurements only), February 1959 to March 1960 (monthly measurements only), April 1960 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 850 ft (259 m), from topographic map. Prior to Mar. 29, 1961, wire-weight gage read twice daily at same site and datum.

REMARKS.--Records poor. The Puerto Rico Aqueduct and Sewer Authority operates a pumping plant about 5 mi (8 km) upstream which can divert as much as 23 ft<sup>3</sup>/s (0.65 m<sup>3</sup>/s) into Cidra Reservoir. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e16	e49	e11	e9.8	e14	e9.3	e19	e150	e25	e9.2	e9.2	e9.6
2	e17	e38	e13	e9.8	e15	e9.4	e600	e185	e23	e9.2	e9.4	e11
3	e12	e28	e16	e9.4	e45	e9.0	e40	e31	e22	e8.8	e22	e19
4	e11	e19	e22	e28	e49	e11	e18	e21	e21	e8.6	e100	e28
5	e17	e13	e24	e8000	e27	e12	e14	e19	e19	e9.2	e220	e16
6	e11	e24	e20	e5230	e26	e9.5	e17	e34	e19	e8.6	e50	e15
7	e55	e32	e18	e1740	e23	e9.2	e21	e18	e20	e14	e22	e12
8	e25	e35	e18	e49	e18	e45	e17	e20	e21	e31	e19	e9.5
9	e13	e23	e21	e47	e17	e15	e15	e13	e21	e16	e25	e8.7
10	e11	e14	e18	e66	e20	e11	e14	e13	e20	e11	e20	e8.3
11	e10	e12	e15	e36	e19	e9.8	e14	e12	e19	e10	e17	e8.1
12	e97	e11	e16	e29	e25	e9.2	e13	e12	e17	e11	e20	e7.5
13	e9.0	e9.4	e14	e66	e16	e9.0	e13	e13	e15	e16	e16	e7.1
14	e8.8	e9.6	e19	e36	e15	e8.8	e13	e13	e14	e23	e56	e7.1
15	e9.0	e8.6	e13	e29	e15	e8.5	e12	e31	e14	e25	e21	e7.3
16	e8.8	e14	e12	e230	e14	e8.4	e13	e74	e14	e13	e17	e15
17	e7.8	e11	e10	e110	e13	e24	e13	e22	e13	e11	e15	e26
18	e8.6	e9.0	e9.6	e56	e14	e15	e13	e120	e13	e10	e15	e45
19	e9.4	e9.0	e9.0	e38	e14	e12	e13	e180	e12	e16	e16	e97
20	e9.2	e10	e46	e31	e14	e10	e13	e74	e13	e9.6	e16	e45
21	e9.2	e17	e31	e28	e15	e9.6	e12	e170	e16	e8.8	e14	e20
22	e8.2	e20	e17	e27	e14	e19	e12	e78	e12	e12	e13	e15
23	e8.4	e45	e14	e26	e13	e11	e11	e400	e11	e23	e12	e12
24	e7.6	e88	e12	e24	e13	e9.6	e11	e280	e10	e34	e11	e11
25	e7.8	e23	e11	e24	e13	e9.2	e11	e130	e10	e11	e12	e9.9
26	e8.4	e19	e12	e23	e14	e8.6	e11	e120	e9.8	e9.7	e13	e8.8
27	e7.8	e14	e17	e21	e13	e300	e10	e100	e9.8	e9.4	e11	e8.2
28	e10	e12	e13	e19	e12	e530	e28	e56	e9.6	e9.4	e10	e8.4
29	e25	e17	e11	e18	e11	e28	e60	e40	e9.4	e9.0	e9.8	e9.4
30	e27	e13	e10	e16	---	e13	e46	e31	e9.4	e8.6	e10	e10
31	e13	---	e9.8	e15	---	e34	---	e27	---	e8.7	e11	---
TOTAL	498.0	646.6	502.4	16091.0	531	1227.1	1117	2487	462.0	413.8	832.4	514.9
MEAN	16.1	21.6	16.2	519	18.3	39.6	37.2	80.2	15.4	13.3	26.9	17.2
MAX	97	88	46	8000	49	530	600	400	25	34	220	97
MIN	7.6	8.6	9.0	9.4	11	8.4	10	12	9.4	8.6	9.2	7.1
AC-FT	988	1280	997	31920	1050	2430	2220	4930	916	821	1650	1020
CFSM	.29	.39	.30	9.47	.33	.72	.68	1.46	.28	.24	.49	.31
IN.	.34	.44	.34	10.92	.36	.83	.76	1.69	.31	.28	.57	.35

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1992, BY WATER YEAR (WY)

	MEAN	212	184	102	66.8	46.6	34.7	50.7	106	95.3	83.8	137	157
MAX	2164	831	565	519	195	120	323	594	629	489	642	975	
(WY)	1971	1978	1971	1992	1989	1972	1971	1985	1970	1961	1961	1960	
MIN	7.82	12.1	9.16	7.78	7.65	4.72	6.61	6.66	4.93	5.30	9.45	11.9	
(WY)	1969	1982	1990	1990	1990	1977	1977	1968	1977	1977	1967	1967	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1960 - 1992

ANNUAL TOTAL	8590.2	25323.2	105
ANNUAL MEAN	23.5	69.2	368
HIGHEST ANNUAL MEAN			31.3
LOWEST ANNUAL MEAN			1971
HIGHEST DAILY MEAN	900	8000	20300
LOWEST DAILY MEAN	3.1	7.1	2.6
ANNUAL SEVEN-DAY MINIMUM	3.9	7.7	3.2
INSTANTANEOUS PEAK FLOW		73600	73600
INSTANTANEOUS PEAK STAGE		36.39	36.39
ANNUAL RUNOFF (AC-FT)	17040	50230	75790
ANNUAL RUNOFF (CFSM)	.43	1.26	1.91
ANNUAL RUNOFF (INCHES)	5.83	17.19	25.94
10 PERCENT EXCEEDS	45	49	160
50 PERCENT EXCEEDS	11	14	29
90 PERCENT EXCEEDS	5.4	9.0	8.9

## RIO DE LA PLATA BASIN

50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991										
08...	1200	24	437	8.1	27.5	13	7.5	20	K650	520
DEC										
05...	0930	31	396	7.7	23.5	5.0	6.8	19	K600	570
FEB 1992										
22...	1100	12	440	8.2	24.5	0.50	8.3	<10	140	320
APR										
20...	0905	300	395	7.7	25.0	280	6.3	36	K73000	65000
JUN										
10...	0950	19	428	8.3	27.5	0.60	8.2	<10	K80	K170
AUG										
07...	0925	142	175	6.9	26.5	26	6.2	25	21000	3500

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE DIS- SOLVED (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 1991										
08...	160	39	14	33	1	2.8	140	<0.5	26	34
DEC										
05...	--	--	--	--	--	--	130	--	--	--
FEB 1992										
22...	--	--	--	--	--	--	170	--	--	--
APR										
20...	80	20	7.3	15	0.7	3.4	130	<0.5	7.4	17
JUN										
10...	--	--	--	--	--	--	150	--	--	--
AUG										
07...	56	14	5.1	14	0.8	1.7	60	--	8.4	14

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
08...	0.10	24	257	16.4	23	1.87	0.030	1.90	0.050	0.45
DEC										
05...	--	--	--	--	22	2.47	0.130	2.60	0.130	0.57
FEB 1992										
22...	--	--	--	--	4	--	<0.010	0.290	0.010	0.19
APR										
20...	0.10	17	165	134	291	1.08	0.020	1.10	0.020	0.58
JUN										
10...	--	--	--	--	<1	0.690	0.010	0.700	<0.010	--
AUG										
07...	0.10	17	109	41.8	39	0.480	0.030	0.510	0.070	0.33

K = non-ideal count



## RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR

LOCATION.--Lat 18°13'23", long 66°13'30", Hydrologic Unit 21010005, on right bank 50 ft (15 m) upstream from bridge off Highway 167 in the Town of Comerio, 0.4 mi (0.6 km) southwest of Comerio High School, and 0.2 mi (0.3 km) northeast of Plaza de Comerio.

DRAINAGE AREA.--109 mi<sup>2</sup> (282 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 604.2 ft (184.160 m) above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	49	46	19	e27	e21	36	17	96	30	29	37
2	37	50	34	21	e27	e22	216	30	e115	28	32	37
3	56	50	30	21	e80	e21	35	30	e63	27	35	36
4	32	31	36	18	e90	e23	21	20	51	26	36	38
5	23	30	46	e14600	e50	e25	19	17	49	25	55	39
6	22	30	34	e5630	e50	e23	18	17	43	25	424	44
7	83	313	28	e330	e40	e22	17	22	39	25	163	38
8	47	367	24	e100	e35	e21	18	20	42	25	108	35
9	46	332	25	e90	e34	e25	29	17	44	25	84	37
10	25	123	22	e120	e37	e60	43	16	57	27	75	46
11	24	68	22	e70	e36	e55	21	14	128	27	69	37
12	22	e45	26	e60	e45	e35	18	14	161	27	73	34
13	19	e35	20	e120	e30	e25	27	15	167	29	69	33
14	18	e30	18	e70	e29	e22	27	15	224	28	61	33
15	17	27	17	e60	e28	e21	23	37	113	23	62	33
16	16	29	17	e400	e25	e20	43	33	85	22	63	33
17	16	42	17	e250	e24	e50	55	52	71	25	60	45
18	15	36	18	e110	e25	e33	25	29	75	36	54	63
19	15	26	17	e85	e25	30	127	20	55	30	51	63
20	33	21	19	e70	e25	25	213	31	48	25	47	642
21	21	23	64	e60	e26	23	60	79	96	26	46	562
22	19	37	49	e55	e27	24	30	29	116	26	45	152
23	21	38	27	e50	e25	24	23	832	72	49	41	91
24	20	32	21	e45	e25	22	19	1930	54	33	40	64
25	18	202	19	e42	e24	22	18	432	45	28	40	52
26	18	62	19	e38	e27	22	17	3380	40	25	40	47
27	18	90	20	e35	e25	20	16	463	37	26	45	44
28	21	187	20	e33	e24	21	16	184	34	22	46	41
29	25	118	19	e31	e23	21	16	132	34	22	43	39
30	282	73	19	e29	---	22	17	109	34	27	41	73
31	171	---	19	e28	---	20	---	106	---	28	40	---
TOTAL	1260	2596	812	22690	988	820	1263	8142	2288	847	2117	2568
MEAN	40.6	86.5	26.2	732	34.1	26.5	42.1	263	76.3	27.3	68.3	85.6
MAX	282	367	64	14600	90	60	216	3380	224	49	424	642
MIN	15	21	17	18	23	20	16	14	34	22	29	33
AC-FT	2500	5150	1610	45010	1960	1630	2510	16150	4540	1680	4200	5090
CFSM	.37	.80	.24	6.75	.31	.24	.39	2.42	.70	.25	.63	.79
IN.	.43	.89	.28	7.78	.34	.28	.43	2.79	.78	.29	.73	.88

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992	1989	1990	1991	1992	1989	1990	1991	1992
MEAN	342	74.0	40.2	221	110	48.6	32.4	92.0	40.5	52.5	53.4	235
MAX	866	92.7	70.4	732	247	75.7	42.1	263	76.3	119	76.1	729
(WY)	1991	1991	1991	1992	1989	1989	1992	1992	1991	1989	1989	1989
MIN	40.6	42.6	23.9	22.8	24.4	26.5	22.3	25.3	16.0	19.0	26.5	51.2
(WY)	1992	1990	1990	1990	1990	1992	1991	1989	1991	1989	1991	1991

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1989 - 1992	
ANNUAL TOTAL	20781		46391		101	
ANNUAL MEAN	56.9		127		131	
HIGHEST ANNUAL MEAN					45.0	
LOWEST ANNUAL MEAN					1991	
HIGHEST DAILY MEAN	2500	Jul 16	14600	Jan 5	14600	Jan 5 1992
LOWEST DAILY MEAN	11	Jul 14	14	May 11	10	Jul 17 1989
ANNUAL SEVEN-DAY MINIMUM	13	Jun 16	16	May 8	11	Jun 25 1989
INSTANTANEOUS PEAK FLOW			127000	Jan 5	127000	Jan 5 1992
INSTANTANEOUS PEAK STAGE			29.22	Jan 5	29.22	Jan 5 1992
INSTANTANEOUS LOW FLOW			14	May 10	10	Aug 28 1990
ANNUAL RUNOFF (AC-FT)	41220		92020		73200	
ANNUAL RUNOFF (CFSM)	.52		1.17		.93	
ANNUAL RUNOFF (INCHES)	7.12		15.91		12.65	
10 PERCENT EXCEEDS	96		115		130	
50 PERCENT EXCEEDS	28		33		32	
90 PERCENT EXCEEDS	16		19		16	

## RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1989 to current year.

INSTRUMENTATION.-- USD-77 and automatic sediment sampler.

REMARKS.--Sediment samples were collected by a local observer on a week basis and during high flow events.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to September 1992

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 8,800 mg/L Jan. 05, 1992; Minimum daily mean, 2 mg/L few days.

SEDIMENT LOADS: Maximum daily mean, 950,000 tons (862,000 tonnes) Jan. 05, 1992; Minimum daily mean, 0.06 ton (0.05 tonne) Aug 20, 1990.

EXTREMES FOR WATER YEARS 1992.--

SEDIMENT CONCENTRATION: Maximum daily mean, 8,800 mg/l Jan. 05, 1992; Minimum daily mean, 2 mg/L Feb. 23, 1992.

SEDIMENT LOADS: Maximum daily mean, 950,000 tons (862,000 tonnes) Jan. 05, 1992; Minimum daily mean .23 tons (.21 tonnes) May 12, 1992.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	60	42	7.1	49	89	12	46	17	2.1
2	37	28	3.0	50	40	5.5	34	18	1.6
3	56	38	6.2	50	30	3.9	30	20	1.7
4	32	21	1.8	31	29	2.5	36	19	1.8
5	23	17	1.1	30	26	2.2	46	17	1.9
6	22	15	.94	30	23	1.9	34	14	1.3
7	83	48	25	313	148	278	28	12	.92
8	47	35	5.4	367	184	209	24	12	.81
9	46	35	4.6	332	171	158	25	12	.78
10	25	29	2.1	123	40	17	22	12	.73
11	24	24	1.5	68	15	2.8	22	12	.75
12	22	20	1.2	e45	e14	1.6	26	16	1.0
13	19	20	1.0	e35	e12	1.0	20	20	1.1
14	18	21	.99	e30	e12	.91	18	20	.95
15	17	22	.98	27	12	.86	17	20	.92
16	16	21	.91	29	12	.88	17	20	.92
17	16	19	.79	42	22	3.0	17	20	.95
18	15	18	.72	36	17	1.7	18	17	.83
19	15	18	.72	26	15	1.0	17	14	.64
20	33	27	2.6	21	15	.90	19	15	.81
21	21	27	1.6	23	16	1.1	64	41	7.3
22	19	25	1.3	37	27	2.8	49	17	2.7
23	21	22	1.2	38	28	2.9	27	18	1.3
24	20	20	1.1	32	24	1.8	21	26	1.4
25	18	17	.82	202	113	76	19	33	1.7
26	18	13	.60	62	45	8.4	19	35	1.8
27	18	9	.43	90	54	23	20	34	1.8
28	21	14	1.0	187	58	35	20	32	1.7
29	25	19	1.4	118	23	7.8	19	33	1.7
30	282	127	384	73	19	3.9	19	35	1.8
31	171	173	100	---	---	---	19	35	1.8
TOTAL	1260	---	562.10	2596	---	867.35	812	---	47.51

e Estimated

## RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	19	28	1.4	e27	8	e.58	e21	14	e.77
2	21	20	1.1	e27	8	e.58	e22	15	e.90
3	21	20	1.2	e80	8	e1.7	e21	21	e1.2
4	18	20	1.0	e90	11	e2.6	e23	43	e2.6
5	e14600	8800	e950000	e50	23	e3.0	e25	73	e4.9
6	e5630	3560	e86600	e50	40	e5.4	e23	90	e5.6
7	e330	921	e1190	e40	51	e5.5	e22	492	e29
8	e100	153	e41	e35	50	e4.7	e21	48	e2.7
9	e90	22	e5.4	e34	44	e4.0	e25	28	e1.8
10	e120	15	e4.9	e37	37	e3.7	e60	351	e57
11	e70	12	e2.2	e36	30	e2.9	e55	355	e62
12	e60	11	e1.8	e45	21	e2.5	e35	29	e2.7
13	e120	10	e3.2	e30	15	e1.2	e25	28	e1.9
14	e70	7	e1.4	e29	19	e1.5	e22	27	e1.6
15	e60	8	e1.3	e28	33	e2.5	e21	26	e1.5
16	e400	16	e17	e25	40	e2.7	e20	24	e1.3
17	e250	27	e18	e24	36	e2.3	e50	23	e3.1
18	e110	31	e9.1	e25	26	e1.7	e33	17	e1.4
19	e85	25	e5.6	e25	16	e1.0	30	8	.67
20	e70	20	e3.8	e25	10	e.64	25	8	.57
21	e60	11	e1.8	e26	6	e.46	23	10	.63
22	e55	8	e1.3	e27	5	e.36	24	11	.71
23	e50	5	e.74	e25	2	e.17	24	11	.70
24	e45	3	e.42	e25	3	e.24	22	11	.67
25	e42	3	e.34	e24	6	e.39	22	10	.60
26	e38	3	e.30	e27	8	e.62	22	8	.46
27	e35	3	e.28	e25	11	e.75	20	29	1.6
28	e33	3	e.26	e24	12	e.78	21	143	9.0
29	e31	3	e.30	e23	12	e.74	21	170	9.4
30	e29	5	e.39	---	---	---	22	185	11
31	e28	7	e.53	---	---	---	20	113	6.4
TOTAL	22690	---	1037916.06	988	---	55.21	820	---	224.38

e Estimated



## RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	36	33	7.1	17	35	1.6	96	14	3.8
2	216	121	179	30	18	1.1	e115	24	e7.5
3	35	73	7.6	30	13	.94	e63	30	e5.3
4	21	49	3.0	20	15	.80	51	25	3.4
5	19	39	2.0	17	8	.35	49	20	2.8
6	18	34	1.7	17	5	.25	43	21	2.6
7	17	30	1.4	22	8	.51	39	23	2.4
8	18	53	2.5	20	13	.64	42	23	2.6
9	29	62	4.6	17	27	1.1	44	22	2.6
10	43	101	10	16	18	.77	57	33	7.4
11	21	192	11	14	9	.32	128	82	31
12	18	133	6.1	14	6	.23	161	94	50
13	27	132	9.8	15	6	.25	167	81	39
14	27	155	11	15	8	.31	224	127	88
15	23	155	10	37	17	2.0	113	74	25
16	43	133	15	33	26	2.6	85	57	14
17	55	194	27	52	64	15	71	48	9.3
18	25	333	21	29	126	9.9	75	42	8.9
19	127	421	146	20	63	3.2	55	38	5.7
20	213	429	258	31	43	4.3	48	33	4.2
21	60	296	55	79	264	107	96	49	19
22	30	98	8.9	29	111	10	116	28	8.7
23	23	25	1.5	832	504	4940	72	53	10
24	19	18	.87	1930	884	7600	54	79	11
25	18	25	1.2	432	95	128	45	56	7.0
26	17	29	1.4	3380	1350	27000	40	22	2.3
27	16	23	1.0	463	198	276	37	16	1.6
28	16	17	.69	184	47	27	34	13	1.2
29	16	25	1.0	132	10	3.7	34	13	1.2
30	17	28	1.3	109	9	2.7	34	13	1.1
31	---	---	---	106	9	2.5	---	---	---
TOTAL	1263	---	806.66	8142	---	40143.07	2288	---	378.6

e Estimated

## RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	30	14	1.1	29	10	.77	37	19	1.9
2	28	15	1.1	32	10	.86	37	21	2.1
3	27	16	1.2	35	11	.99	36	22	2.1
4	26	19	1.3	36	11	1.1	38	24	2.4
5	25	24	1.6	55	32	6.5	39	25	2.6
6	25	29	2.0	424	204	332	44	25	2.9
7	25	32	2.2	163	81	41	38	23	2.3
8	25	31	2.1	108	30	9.1	35	21	2.0
9	25	24	1.7	84	19	4.3	37	18	1.9
10	27	20	1.5	75	17	3.3	46	15	1.7
11	27	16	1.2	69	14	2.6	37	14	1.4
12	27	17	1.3	73	13	2.4	34	14	1.3
13	29	19	1.4	69	12	2.2	33	13	1.2
14	28	30	2.2	61	11	1.8	33	13	1.2
15	23	33	2.1	62	11	1.9	33	13	1.2
16	22	16	.93	63	12	2.0	33	13	1.2
17	25	7	.48	60	12	1.9	45	31	4.4
18	36	8	.77	54	12	1.7	63	44	7.6
19	30	9	.73	51	15	2.0	63	46	9.2
20	25	10	.66	47	19	2.4	642	193	1360
21	26	8	.55	46	20	2.5	562	244	434
22	26	7	.50	45	20	2.3	152	90	43
23	49	33	4.6	41	19	2.1	91	50	13
24	33	20	1.8	40	16	1.7	64	39	6.8
25	28	10	.70	40	12	1.2	52	36	5.0
26	25	7	.53	40	9	.96	47	33	4.1
27	26	9	.60	45	8	.96	44	32	3.7
28	22	10	.60	46	9	1.1	41	30	3.3
29	22	10	.58	43	66	7.7	39	28	2.9
30	27	10	.68	41	14	1.6	73	47	13
31	28	10	.76	40	17	1.8	---	---	---
TOTAL	847	---	39.47	2117	---	444.74	2568	---	1939.4
YEAR	46391		1083424.55						

## RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM	
JAN 1992								
05...	1745	11300	10700	327000	22	32	41	
05...	1630	6960	23100	434000	15	25	43	
APR								
10...	1630	29	582	46	69	77	81	
MAY								
24...	0010	4950	2680	35800	37	39	49	
26...	0618	10780	6000	175000	23	27	29	
DATE		SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
JAN 1992								
05...	51	63	77	93	97	99	99.9	
05...	64	76	90	96	99.8	99.8	99.9	
APR								
10...	--	--	98	98	98	100	100	
MAY								
24...	--	71	92	98	99	100	100	
26...	36	44	59	73	85	97	99	

RIO DE LA PLATA BASIN  
 50043800 RIO DE LA PLATA AT COMERIO--Continued  
 WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
 SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
03...	1733	50	49	6.7	91
31...	1905	74	693	138	99
JAN 1992					
05...	1550	1700	70100	320000	35
06...	2200	2460	762	5060	98
APR					
02...	2006	18	545	26	98
13...	0800	18	402	19	98
MAY					
23...	2020	4310	3530	41000	88
24...	0050	4590	2280	28200	95
26...	0710	8720	2080	48990	99
JUN					
09...	1452	39	153	16	96
JUL					
03...	1730	27	327	24	97
AUG					
06...	1030	719	1280	2480	97
SEP					
20...	2115	570	570	877	98

## RIO DE LA PLATA BASIN

50044000 RIO DE LA PLATA NEAR COMERIO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'33", long 66°12'28", at bridge on Highway 156, 0.56 mi (0.9 km) upstream from dam, about 2.0 mi (3.2 km) northeast of Comerio plaza.

DRAINAGE AREA.--139 mi<sup>2</sup> (360 km<sup>2</sup>), excludes 8.2 mi<sup>2</sup> (21.1 km<sup>2</sup>) upstream from Carite Reservoir, the flow of which is diverted to Rio Guanani.

PERIOD OF RECORD.--Water years 1979 to current year.

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991											
15...	1200	26	427	8.5	27.0	6.1	10.0	120	14	540	K100
DEC											
10...	1300	35	425	8.3	24.5	2.5	9.2	110	19	K92	K150
FEB 1992											
24...	1515	37	420	7.8	25.0	1.3	8.1	98	17	240	310
APR											
01...	1010	27	431	8.0	26.0	1.1	8.8	108	14	K850	K200
JUN											
08...	0950	55	389	8.7	27.0	0.90	9.5	102	12	K650	K100
AUG											
05...	1005	68	372	8.1	27.0	1.6	7.4	91	16	2800	2600

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 1991										
15...	150	36	15	26	0.9	3.0	540	<0.5	22	30
DEC										
10...	--	--	--	--	--	--	140	--	--	--
FEB 1992										
24...	--	--	--	--	--	--	160	--	--	--
APR										
01...	160	39	16	28	1	4.7	170	<0.5	21	37
JUN										
08...	--	--	--	--	--	--	130	--	--	--
AUG										
05...	130	32	13	26	1	2.6	120	--	20	30

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
15...	0.10	29	485	34.4	8	0.660	0.010	0.670	0.040	0.26
DEC										
10...	--	--	--	--	35	0.870	0.010	0.880	0.020	0.28
FEB 1992										
24...	--	--	--	--	--	0.360	0.010	0.370	0.040	0.26
APR										
01...	0.20	20	268	19.5	2	--	<0.010	0.260	0.020	--
JUN										
08...	--	--	--	--	1	--	<0.010	0.290	0.010	0.19
AUG										
05...	0.10	24	229	42	22	--	<0.010	0.200	0.040	0.36

K = non-ideal count

## RIO DE LA PLATA BASIN

50044000 RIO DE LA PLATA NEAR COMERIO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
15...	0.30	0.97	4.3	0.370	<1	<100	90	<1	<1	<10
DEC 10...	0.30	1.2	5.2	0.370	--	--	--	--	--	--
FEB 1992										
24...	0.30	0.67	3.0	0.210	--	--	--	--	--	--
APR 01...	<0.20	--	--	0.110	1	<100	60	<1	<1	20
JUN 08...	0.20	0.49	2.2	0.140	--	--	--	--	--	--
AUG 05...	0.40	0.60	2.7	0.290	--	--	--	--	--	--

[illegible]

## RIO DE LA PLATA BASIN

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50044830 RIO GUADIANA AT GUADIANA, PR

LOCATION.--Lat 18°18'08", long 66°13'24", Hydrologic Unit 21010005, at left bank downstream side of river, 1.3 mi (2.1 km) East of Plaza de Naranjito, 0.9 mi (1.4 km) west from intersection of roads 167 and 164 at km 8.9 and 2.9 mi (4.7 km) northwest from Represa Comerio.

DRAINAGE AREA.--9.19 mi<sup>2</sup> (23.80 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	17	3.8	3.4	5.1	3.2	6.4	45	9.1	3.2	3.1	3.4
2	5.9	13	4.3	3.4	5.1	3.3	217	66	8.2	3.2	3.3	3.3
3	3.9	9.8	5.0	3.2	15	3.1	22	15	7.8	3.2	3.3	4.5
4	3.8	6.0	7.7	3.2	17	3.7	7.2	8.4	7.8	2.9	19	10
5	5.7	e4.5	8.4	536	9.3	4.0	4.8	6.5	6.8	3.2	78	6.1
6	3.6	7.6	7.2	342	9.4	3.3	5.0	12	6.4	3.0	30	5.3
7	19	11	6.4	43	8.4	3.2	7.3	6.8	6.9	3.0	9.4	5.2
8	8.7	12	6.3	17	6.5	16	6.1	5.4	7.4	11	6.7	3.6
9	4.2	8.4	7.4	16	6.1	6.3	e6.0	4.9	7.1	7.2	8.7	3.2
10	3.7	5.0	6.3	23	6.9	3.8	e5.0	4.6	7.3	3.9	7.6	3.0
11	3.5	3.9	5.1	13	6.7	3.5	e4.9	4.4	6.9	3.5	6.0	2.9
12	3.3	3.8	5.7	10	8.9	3.3	e4.8	4.2	6.0	3.5	7.3	2.8
13	3.0	3.2	4.8	23	5.7	3.1	4.7	4.2	5.4	4.4	5.7	2.5
14	3.0	3.3	6.7	13	5.5	3.1	4.6	4.6	5.1	7.0	20	2.5
15	3.0	2.9	4.4	9.9	5.2	3.0	4.3	4.3	5.0	8.8	7.9	2.5
16	3.0	4.7	4.2	81	5.0	2.9	4.3	26	5.2	5.1	6.7	2.6
17	2.6	4.0	3.7	48	4.6	8.3	4.7	7.5	4.8	4.2	5.4	9.4
18	2.9	3.1	3.4	20	4.8	5.3	4.5	29	4.5	3.5	5.2	3.4
19	3.2	3.1	3.1	14	4.8	4.4	4.5	65	4.3	5.5	5.2	33
20	3.1	3.1	16	11	4.7	3.7	4.4	26	4.1	3.6	5.6	29
21	3.1	5.9	12	10	5.3	3.3	4.5	60	5.6	3.0	5.0	9.3
22	2.8	6.1	6.1	9.5	5.2	6.6	4.1	27	4.1	3.1	4.6	4.7
23	2.9	13	4.9	9.2	4.6	3.8	4.0	145	3.9	5.4	4.3	4.1
24	2.6	31	4.2	8.5	4.7	3.4	3.9	130	3.7	12	4.2	3.2
25	2.6	8.0	3.7	8.3	4.3	3.3	3.8	45	3.5	3.9	4.0	3.1
26	2.9	6.8	3.7	8.3	5.0	3.0	3.7	42	3.4	3.5	4.6	2.8
27	2.6	5.1	5.8	7.2	4.2	81	3.7	42	3.4	3.3	4.2	2.5
28	3.6	3.9	4.5	6.9	3.8	197	3.4	23	3.4	3.3	3.7	2.5
29	8.6	5.8	4.0	6.5	3.6	17	21	15	3.2	3.3	3.4	2.7
30	9.2	4.6	3.6	5.6	---	4.6	16	12	3.3	3.0	3.4	3.1
31	4.4	---	3.4	5.5	---	12	---	9.6	---	3.0	3.7	---
TOTAL	139.7	219.6	175.8	1318.6	185.4	425.5	400.6	900.4	163.6	139.7	289.2	176.2
MEAN	4.51	7.32	5.67	42.5	6.39	13.7	13.4	29.0	5.45	4.51	9.33	5.87
MAX	19	31	16	536	17	197	217	145	9.1	12	78	33
MIN	2.6	2.9	3.1	3.2	3.6	2.9	3.4	4.2	3.2	2.9	3.1	2.5
AC-FT	277	436	349	2620	368	844	795	1790	325	277	574	349
CFSM	.49	.80	.62	4.63	.70	1.49	1.45	3.16	.59	.49	1.02	.64
IN.	.57	.89	.71	5.34	.75	1.72	1.62	3.64	.66	.57	1.17	.71

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1992, BY WATER YEAR (WY)

	MEAN	51.6	10.7	12.7	28.9	18.8	13.3	12.5	18.3	5.33	9.25	7.22	8.65
MAX	98.7	14.1	19.7	42.5	31.7	13.7	13.4	29.0	5.45	14.0	9.33	16.1	
(WY)	1991	1991	1991	1992	1991	1992	1992	1992	1992	1991	1992	1990	
MIN	4.51	7.32	5.67	15.2	6.39	12.9	11.6	7.49	5.21	4.51	5.76	3.95	
(WY)	1992	1992	1992	1991	1992	1991	1991	1991	1991	1992	1991	1991	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1990 - 1992

ANNUAL TOTAL	3757.4	4534.3	
ANNUAL MEAN	10.3	12.4	16.2
HIGHEST ANNUAL MEAN			20.0
LOWEST ANNUAL MEAN			12.4
HIGHEST DAILY MEAN	335	Feb 5	536 Jan 5 1992
LOWEST DAILY MEAN	2.6	Jun 27	2.5 Sep 13 1992
ANNUAL SEVEN-DAY MINIMUM	2.8	Oct 21	2.7 Sep 10 1992
INSTANTANEOUS PEAK FLOW			6670 Jan 5 1992
INSTANTANEOUS PEAK STAGE			13.36 Jan 5 1992
ANNUAL RUNOFF (AC-FT)	7450	8990	11750
ANNUAL RUNOFF (CFSM)	1.12	1.35	1.76
ANNUAL RUNOFF (INCHES)	15.21	18.35	23.97
10 PERCENT EXCEEDS	18	17	25
50 PERCENT EXCEEDS	5.9	4.8	6.5
90 PERCENT EXCEEDS	3.0	3.1	3.2

## RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

**INSTRUMENTATION.**-- USD-77 and automatic sediment sampler.

PERIOD OF DAILY RECORD.--

**SUSPENDED-SEDIMENT DISCHARGE: August 01, 1990 to September 1992**

**EXTREMES FOR PERIOD OF DAILY RECORD.--**

SEDIMENT CONCENTRATION: Maximum daily mean, 1,300 mg/L Oct. 16, 1990; Minimum daily mean, 2 mg/L few days.

SEDIMENT LOADS: Maximum daily mean, 18,000tons (16,300tonnes) Jan. 05, 1992; Minimum daily mean, 0.00 ton (0.0 tonne) several days.

EXTREMES FOR WATER YEARS 1990-92.--

Water Year	Suspended-sediment concentration (mg/L)		Suspended-sediment discharge (tons per day)	
	maximum	minimum	maximum	minimum
1990	259 (Sep. 25)	2 (Aug. 20)	185 (Sep. 03)	.05 (Aug. 04)
1991	1,430 (Feb. 05)	1 (Several days)	8,650 (Feb. 05)	.00 (Several days)
1992	2,690 (Jan. 05)	2 (Several days)	18,000 (Jan. 05)	.02 (Several days)

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN	MEAN	SEDIMENT	MEAN	MEAN	SEDIMENT	MEAN	MEAN	SEDIMENT
	DISCHARGE	CONCENTRATION		DISCHARGE	CONCENTRATION		DISCHARGE	CONCENTRATION	
	(CFS)	(MG/L)	(TONS/DAY)	(CFS)	(MG/L)	(TONS/DAY)	(CFS)	(MG/L)	(TONS/DAY)
JULY									
1	---	---	---	e4.1	6	e.06	6.6	11	.31
2	---	---	---	e5.8	9	e.18	5.7	8	.15
3	---	---	---	e5.4	6	e.08	66	231	185
4	---	---	---	e4.3	5	e.05	22	50	5.3
5	---	---	---	e5.0	5	e.08	38	115	49
6	---	---	---	e6.8	9	e.16	15	31	1.7
7	---	---	---	e8.8	13	e.30	59	188	114
8	---	---	---	e6.2	9	e.16	28	62	6.1
9	---	---	---	e6.0	9	e.14	13	28	1.0
10	---	---	---	e8.2	12	e.26	9.8	17	.47
11	---	---	---	e6.4	7	e.12	13	26	2.0
12	---	---	---	e7.0	10	e.18	8.4	14	.34
13	---	---	---	e10	17	e.46	7.3	10	.20
14	---	---	---	9.0	15	.36	30	72	17
15	---	---	---	6.0	9	.14	14	25	1.0
16	---	---	---	5.1	6	.08	8.6	14	.33
17	---	---	---	4.6	6	.08	7.2	10	.17
18	---	---	---	4.6	6	.07	13	27	2.8
19	---	---	---	4.2	6	.06	8.4	15	.38
20	---	---	---	4.2	5	.06	7.0	10	.16
21	---	---	---	4.0	5	.06	6.5	10	.16
22	---	---	---	5.8	7	.12	6.7	10	.16
23	---	---	---	4.9	7	.10	14	27	2.0
24	---	---	---	4.3	6	.07	7.9	13	.29
25	---	---	---	6.2	11	.30	23	63	25
26	---	---	---	4.5	6	.07	11	21	.77
27	---	---	---	4.1	5	.06	9.2	17	.56
28	---	---	---	24	69	30	8.2	15	.34
29	---	---	---	14	74	3.6	8.5	12	.27
30	---	---	---	5.5	20	.31	8.5	14	.41
31	---	---	---	4.8	8	.10	---	---	---
TOTAL	---	---	---	203.8	---	37.87	483.5	---	417.3

e Estimated



## RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	7.9	13	.31	16	5	.24	25	55	4.3
2	5.7	8	.12	15	4	.18	38	98	19
3	15	62	3.7	15	4	.16	105	281	147
4	56	156	38	16	4	.17	40	22	2.8
5	33	75	7.7	15	4	.17	21	11	.70
6	19	36	1.9	14	4	.17	16	7	.30
7	108	430	599	13	5	.18	14	5	.20
8	46	94	16	13	4	.14	13	4	.15
9	194	790	2080	13	3	.10	12	4	.12
10	186	699	906	12	3	.10	12	4	.12
11	68	211	47	12	3	.11	12	4	.14
12	30	68	6.3	12	4	.12	14	6	.20
13	20	38	2.1	11	4	.12	11	8	.27
14	146	593	1100	11	4	.11	11	10	.28
15	234	955	2750	10	4	.12	11	10	.28
16	225	900	2070	13	5	.17	10	9	.24
17	208	828	1490	11	5	.15	9.5	8	.22
18	306	1250	3370	11	5	.14	9.4	7	.17
19	281	1160	2060	11	5	.15	9.3	5	.12
20	102	218	88	12	12	.53	9.3	3	.09
21	322	1090	1430	12	23	.80	9.3	3	.08
22	81	59	15	27	56	5.4	11	5	.14
23	44	35	4.2	14	16	.61	13	6	.21
24	38	42	7.4	11	8	.26	13	6	.22
25	73	265	245	10	7	.19	9.9	7	.19
26	87	255	114	11	7	.19	9.2	6	.15
27	40	65	8.3	14	20	.93	9.2	5	.12
28	27	20	1.6	11	8	.26	10	5	.13
29	22	8	.49	33	93	46	18	39	5.6
30	19	6	.32	25	56	4.9	42	116	28
31	17	6	.29	---	---	---	66	157	41
TOTAL	3060.6	---	18462.73	424	---	62.87	613.1	---	252.54

## RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	58	158	28	9.6	12	.29	11	13	.39
2	29	36	3.1	8.5	12	.26	11	6	.18
3	19	20	1.0	8.3	12	.25	10	5	.14
4	15	20	.81	23	60	18	12	4	.12
5	21	42	4.8	335	1430	8650	10	5	.13
6	25	55	3.7	58	164	37	11	4	.11
7	21	41	2.4	23	37	2.6	11	2	.05
8	18	22	1.0	16	15	.67	10	3	.09
9	19	15	.71	14	11	.39	9.5	5	.12
10	20	15	.81	15	20	1.1	9.1	5	.13
11	18	12	.59	14	24	.88	10	7	.17
12	16	7	.28	17	32	2.3	8.8	7	.18
13	14	5	.19	18	38	2.0	9.2	7	.17
14	13	6	.20	14	22	.84	8.9	5	.11
15	12	10	.34	12	10	.31	8.1	3	.07
16	12	12	.40	13	11	.54	7.3	3	.06
17	11	9	.27	12	22	.72	7.2	3	.07
18	11	4	.13	45	136	58	10	14	.43
19	11	4	.11	59	166	34	7.6	4	.10
20	10	4	.11	44	127	18	7.0	4	.08
21	9.7	5	.12	30	61	6.2	8.1	6	.14
22	9.2	5	.12	20	18	.97	101	346	158
23	9.5	7	.18	16	9	.38	24	47	4.4
24	8.9	12	.29	14	6	.23	12	6	.22
25	8.9	16	.37	12	5	.16	9.7	6	.17
26	8.9	16	.38	11	5	.15	11	13	.64
27	8.6	13	.29	11	5	.16	12	11	.42
28	7.9	8	.18	14	19	1.5	9.3	5	.14
29	7.9	7	.15	---	---	---	8.3	4	.09
30	7.9	9	.18	---	---	---	7.9	4	.09
31	10	10	.29	---	---	---	7.6	2	.05
TOTAL	470.4	---	51.50	886.4	---	8837.90	399.6	---	167.26

## RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	7.6	4	.08	5.8	9	.14	5.1	8	.12
2	8.7	7	.16	7.2	13	.28	3.9	8	.08
3	7.5	6	.11	7.1	9	.19	3.6	8	.08
4	7.1	5	.09	6.0	6	.11	3.6	7	.07
5	7.1	5	.10	5.9	6	.10	3.5	7	.06
6	7.0	5	.09	5.9	6	.10	3.8	8	.07
7	9.1	14	.42	7.6	10	.28	3.7	10	.09
8	21	21	1.3	19	43	4.6	3.3	7	.06
9	11	15	.47	9.5	72	2.6	3.1	4	.03
10	8.9	15	.36	7.1	8	.14	3.0	4	.04
11	10	16	.41	7.6	9	.28	3.0	4	.02
12	16	35	3.7	11	12	.47	3.0	3	.03
13	24	57	7.1	11	15	.88	2.8	3	.02
14	19	47	4.5	9.7	16	.45	2.8	4	.03
15	56	379	292	7.1	14	.25	2.8	6	.05
16	18	38	2.1	6.1	15	.23	2.7	10	.07
17	12	21	.68	5.7	15	.22	2.7	11	.07
18	11	17	.48	6.8	14	.25	3.0	13	.09
19	9.6	14	.34	9.5	23	.68	3.3	15	.13
20	8.6	12	.26	7.6	17	.36	3.2	15	.13
21	8.0	11	.22	5.8	16	.25	3.1	12	.10
22	7.7	7	.15	5.1	16	.21	3.1	7	.06
23	7.4	5	.10	4.8	11	.15	29	389	184
24	6.9	5	.09	4.8	8	.11	4.4	17	.21
25	6.7	6	.10	18	40	5.4	3.3	17	.16
26	6.5	7	.13	5.9	8	.13	2.8	19	.15
27	6.4	8	.13	4.9	6	.09	2.6	20	.14
28	6.3	7	.13	4.5	5	.07	2.6	15	.11
29	5.8	7	.11	4.3	5	.06	7.5	16	.90
30	5.8	8	.12	5.7	9	.26	32	94	30
31	---	---	---	5.2	7	.10	---	---	---
TOTAL	346.7	---	316.03	232.2	---	19.44	156.3	---	217.17

## RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	6.4	16	.31	7.1	11	.27	3.5	2	.02
2	3.7	12	.12	5.1	5	.06	3.6	3	.02
3	4.6	10	.13	4.4	5	.06	3.2	2	.01
4	4.0	13	.13	4.1	4	.05	3.0	1	.00
5	3.3	13	.11	4.0	3	.03	3.1	1	.00
6	3.0	15	.11	3.8	2	.02	3.1	1	.00
7	7.4	20	.57	3.8	1	.01	3.5	1	.01
8	4.4	10	.12	4.1	1	.01	3.1	1	.00
9	3.2	11	.09	3.7	1	.01	3.0	1	.00
10	2.9	11	.08	3.5	1	.00	3.0	1	.00
11	3.0	9	.08	3.5	1	.00	2.8	2	.01
12	2.9	9	.08	3.6	1	.00	6.9	12	.79
13	2.9	8	.07	3.7	1	.00	3.7	7	.08
14	2.7	8	.06	3.6	1	.01	2.9	5	.05
15	2.7	78	.19	3.4	1	.00	2.7	4	.03
16	250	1010	2010	3.9	1	.01	3.3	3	.03
17	22	55	4.5	4.6	1	.01	6.8	11	.28
18	9.0	15	.40	4.0	1	.01	4.0	4	.04
19	6.5	12	.24	3.2	1	.00	3.3	3	.02
20	5.3	12	.16	3.7	17	.24	3.3	2	.02
21	4.7	10	.12	3.5	20	.19	3.3	2	.02
22	4.4	8	.09	4.1	147	.92	4.8	2	.02
23	4.1	5	.05	9.6	79	2.4	5.2	2	.04
24	4.3	5	.05	5.1	10	.15	3.9	2	.02
25	3.9	5	.06	4.4	1	.02	3.4	2	.02
26	4.0	5	.06	4.1	1	.01	3.3	2	.01
27	4.2	5	.05	11	21	1.2	3.3	4	.03
28	4.5	5	.06	6.7	9	.19	3.2	12	.10
29	4.0	5	.05	4.6	3	.04	4.3	15	.18
30	4.2	5	.05	4.0	2	.02	12	34	5.6
31	17	51	.19	3.9	2	.01	---	---	---
TOTAL	433.5	---	2056.00	178.7	---	97.03	118.5	---	7.45
YEAR	7320.0		30547.92						

## RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	5.3	12	.20	17	69	13	3.8	20	.20
2	5.9	14	.25	13	104	3.7	4.3	16	.17
3	3.9	7	.09	9.8	79	2.3	5.0	11	.14
4	3.8	8	.09	6.0	38	.64	7.7	8	.16
5	5.7	12	.19	e4.5	22	e.27	8.4	8	.17
6	3.6	12	.11	7.6	23	.48	7.2	8	.15
7	19	79	15	11	21	.65	6.4	8	.13
8	8.7	124	3.5	12	13	.40	6.3	8	.14
9	4.2	48	.54	8.4	17	.39	7.4	8	.15
10	3.7	104	1.2	5.0	14	.22	6.3	7	.13
11	3.5	13	.12	3.9	10	.11	5.1	5	.06
12	3.3	10	.09	3.8	10	.09	5.7	5	.09
13	3.0	10	.07	3.2	10	.09	4.8	5	.07
14	3.0	10	.08	3.3	8	.08	6.7	5	.09
15	3.0	10	.08	2.9	8	.06	4.4	5	.06
16	3.0	10	.08	4.7	8	.10	4.2	5	.06
17	2.6	10	.07	4.0	8	.09	3.7	5	.05
18	2.9	10	.07	3.1	7	.07	3.4	5	.04
19	3.2	10	.08	3.1	8	.07	3.1	5	.04
20	3.1	8	.07	3.1	10	.08	16	57	8.6
21	3.1	8	.06	5.9	17	.68	12	30	1.3
22	2.8	9	.06	6.1	14	.30	6.1	5	.08
23	2.9	10	.08	13	49	5.2	4.9	5	.06
24	2.6	10	.07	31	85	13	4.2	5	.06
25	2.6	15	.10	8.0	14	.30	3.7	5	.05
26	2.9	19	.15	6.8	12	.22	3.7	5	.05
27	2.6	17	.12	5.1	12	.15	5.8	5	.08
28	3.6	11	.13	3.9	11	.11	4.5	5	.06
29	8.6	25	2.1	5.8	16	.50	4.0	5	.05
30	9.2	33	1.2	4.6	18	.24	3.6	5	.04
31	4.4	12	.14	---	---	---	3.4	5	.05
TOTAL	139.7	---	26.19	219.6	---	43.59	175.8	---	12.58

e Estimated

## RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	3.4	5	.05	5.1	21	.27	3.2	5	.05
2	3.4	5	.04	5.1	19	.24	3.3	3	.02
3	3.2	5	.04	15	47	7.3	3.1	3	.02
4	3.2	5	.04	17	55	3.3	3.7	3	.03
5	536	2690	18000	9.3	20	.55	4.0	7	.08
6	342	1800	2710	9.4	6	.14	3.3	28	.22
7	43	148	21	8.4	6	.13	3.2	53	.42
8	17	43	1.9	6.5	10	.18	16	111	20
9	16	59	3.5	6.1	9	.14	6.3	88	1.8
10	23	66	5.3	6.9	8	.14	3.8	26	.28
11	13	22	.75	6.7	13	.32	3.5	6	.06
12	10	22	.58	8.9	15	.50	3.3	2	.02
13	23	70	5.1	5.7	5	.07	3.1	2	.02
14	13	35	1.3	5.5	5	.06	3.1	2	.02
15	9.9	24	.64	5.2	5	.06	3.0	3	.02
16	81	594	663	5.0	5	.07	2.9	3	.03
17	48	182	33	4.6	4	.04	8.3	15	.74
18	20	42	2.3	4.8	4	.05	5.3	8	.12
19	14	17	.63	4.8	7	.10	4.4	5	.06
20	11	10	.28	4.7	6	.08	3.7	3	.03
21	10	10	.25	5.3	4	.06	3.3	2	.02
22	9.5	10	.25	5.2	7	.09	6.6	13	.31
23	9.2	10	.27	4.6	9	.11	3.8	10	.09
24	8.5	10	.23	4.7	10	.11	3.4	9	.08
25	8.3	10	.22	4.3	7	.08	3.3	6	.06
26	8.3	10	.22	5.0	6	.09	3.0	4	.04
27	7.2	10	.20	4.2	7	.08	81	416	659
28	6.9	12	.20	3.8	8	.08	197	914	4580
29	6.5	16	.28	3.6	8	.08	17	77	5.0
30	5.6	20	.28	---	---	---	4.6	9	.12
31	5.5	21	.31	---	---	---	12	42	4.8
TOTAL	1318.6	---	21452.16	185.4	---	14.52	425.5	---	5273.56

## RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	6.4	15	.28	45	191	85	9.1	2	.04
2	217	1070	4200	66	109	38	8.2	3	.07
3	22	99	6.1	15	12	.51	7.8	7	.15
4	7.2	26	.55	8.4	12	.27	7.8	10	.20
5	4.8	15	.18	6.5	12	.20	6.8	6	.11
6	5.0	15	.22	12	35	1.5	6.4	5	.09
7	7.3	15	.27	6.8	9	.17	6.9	5	.10
8	6.1	14	.24	5.4	6	.09	7.4	5	.10
9	e6.0	14	e.22	4.9	3	.04	7.1	5	.10
10	e5.0	13	e.17	4.6	2	.02	7.3	5	.10
11	e4.9	11	e.15	4.4	2	.02	6.9	5	.09
12	e4.8	8	e.11	4.2	2	.02	6.0	5	.08
13	4.7	5	.07	4.2	2	.02	5.4	6	.08
14	4.6	4	.05	4.6	2	.03	5.1	8	.11
15	4.3	4	.06	4.3	4	.05	5.0	10	.13
16	4.3	5	.06	26	99	30	5.2	11	.14
17	4.7	5	.06	7.5	19	.45	4.8	9	.11
18	4.5	5	.06	29	112	23	4.5	7	.08
19	4.5	4	.05	65	300	256	4.3	6	.06
20	4.4	3	.04	26	79	6.8	4.1	6	.07
21	4.5	5	.06	60	263	133	5.6	17	.36
22	4.1	5	.06	27	90	9.0	4.1	8	.08
23	4.0	6	.06	145	552	702	3.9	7	.08
24	3.9	5	.05	130	241	110	3.7	8	.08
25	3.8	5	.04	45	125	16	3.5	12	.11
26	3.7	7	.07	42	143	18	3.4	18	.16
27	3.7	8	.08	42	110	14	3.4	15	.13
28	3.4	11	.09	23	110	6.7	3.4	9	.09
29	21	83	23	15	105	4.3	3.2	6	.05
30	16	91	6.1	12	46	1.5	3.3	5	.04
31	---	---	---	9.6	6	.15	---	---	---
TOTAL	400.6	---	4238.55	900.4	---	1456.84	163.6	---	3.19

e Estimated

## RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	3.2	5	.04	3.1	4	.03	3.4	10	.09
2	3.2	5	.04	3.3	5	.07	3.3	10	.09
3	3.2	6	.05	3.3	6	.06	4.5	14	.17
4	2.9	6	.04	19	67	11	10	27	1.7
5	3.2	6	.05	78	614	534	6.1	14	.26
6	3.0	6	.05	30	522	77	5.3	11	.18
7	3.0	6	.04	9.4	12	.30	5.2	14	.32
8	11	32	1.8	6.7	6	.12	3.6	8	.08
9	7.2	17	.38	8.7	18	.65	3.2	5	.05
10	3.9	7	.09	7.6	18	.44	3.0	3	.03
11	3.5	7	.07	6.0	11	.19	2.9	3	.02
12	3.5	7	.06	7.3	14	.38	2.8	2	.02
13	4.4	8	.09	5.7	11	.17	2.5	2	.02
14	7.0	15	.49	20	67	14	2.5	3	.02
15	8.8	22	.91	7.9	16	.42	2.5	6	.04
16	5.1	11	.18	6.7	10	.17	2.6	8	.05
17	4.2	8	.09	5.4	10	.13	9.4	31	3.6
18	3.5	7	.07	5.2	9	.12	3.4	6	.07
19	5.5	15	.51	5.2	8	.11	33	134	37
20	3.6	17	.17	5.6	8	.13	29	126	27
21	3.0	11	.08	5.0	7	.09	9.3	29	1.2
22	3.1	7	.05	4.6	4	.06	4.7	14	.21
23	5.4	13	.42	4.3	3	.04	4.1	14	.16
24	12	34	2.6	4.2	3	.04	3.2	12	.12
25	3.9	6	.06	4.0	3	.04	3.1	12	.11
26	3.5	5	.04	4.6	9	.16	2.8	10	.08
27	3.3	4	.03	4.2	5	.05	2.5	7	.05
28	3.3	3	.02	3.7	6	.06	2.5	5	.04
29	3.3	3	.03	3.4	8	.07	2.7	5	.04
30	3.0	3	.03	3.4	8	.07	3.1	5	.04
31	3.0	3	.03	3.7	8	.08	---	---	---
TOTAL	139.7	---	8.61	289.2	---	640.25	176.2	---	72.86
YEAR	4534.3		33242.90						



## RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA , PR--Continued

WATER QUALITY DATA, WATER YEARS OCTOBER 1990 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
OCT 1990							
17...	1601	704	3370	6400	33	38	46
APR 1991							
15...	1317	403	4940	5370	26	36	46
JUN							
23...	1015	208	4920	2760	40	52	61
JAN 1992							
05...	1727	1190	7370	23700	17	23	31
05...	1917	1850	8200	41000	21	28	37
16...	1832	512	3840	5310	25	36	41
MAY							
23...	1852	578	3030	4730	1	3	6
AUG							
05....	2127	344	3860	3580	35	44	54

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
OCT 1990							
17...	56	67	82	91	978	99.4	100
APR 1991							
15...	60	68	86	94	96	97	98
JUN							
23...	74	86	96	98	99	99.6	100
JAN 1992							
05...	39	47	60	72	79	87	94
05...	46	53	66	75	84	94	99
16...	55	65	84	90	93	98	99
MAY							
23...	15	24	63	51	67	83	95
AUG							
05...	68	78	95	98	99	99.7	100

## RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
08...	1500	6.4	113	2	100
NOV					
06...	1215	7.8	55	1.2	98
DEC					
17...	1152	3.6	23	0.2	96
JAN 1992					
05...	1607	423	3500	4000	96
05...	1657	562	4250	6450	91
16...	1917	500	2560	3460	89
16...	2127	205	1140	633	91
MAR					
31...	1805	45	779	95	62
MAY					
21...	1830	126	929	316	94
23...	1827	400	2940	3170	60
23...	2222	342	1030	956	81
JUL					
08...	1635	20	91	5	94
AUG					
05...	2027	443	4540	5430	94
SEP					
17...	1620	11	270	8	98

## RIO DE LA PLATA BASIN

50044850 RIO GUADIANA NEAR NARANJITO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'39", long 66°13'28", at steel-cross-bridge 0.8 mi (1.3 km) northwest of Highway 164, 1.2 mi (1.9 km) upstream from mouth and about 2.0 mi (3.2 km) northeast of Naranjito plaza.

DRAINAGE AREA.--4.0 mi<sup>2</sup> (10.3 km<sup>2</sup>).

PERIOD OF RECORD.--Water year 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991											
15...	0930	3.7	384	8.0	24.5	1.7	7.6	83	12	K1800	K1300
DEC											
10...	1100	6.5	374	8.1	23.0	2.6	8.2	98	<10	700	940
FEB 1992											
25...	0945	4.9	315	8.1	22.5	0.50	7.0	77	12	190	470
APR											
01...	0840	12	299	7.5	22.5	25	8.8	101	22	K7300	5500
JUN											
08...	0810	17	364	8.0	24.5	0.80	8.0	94	10	K910	2300
AUG											
05...	0820	19	250	7.4	25.0	17	6.0	61	27	2000	52000

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991											
15...	150	--	34	15	21	0.8	3.0	120	<0.5	18	29
DEC											
10...	--	--	--	--	--	--	--	130	--	--	--
FEB 1992											
25...	--	--	--	--	--	--	--	120	--	--	--
APR											
01...	120	--	27	13	15	0.6	4.4	110	<0.5	18	26
JUN											
08...	180	--	47	14	24	0.8	2.6	130	<0.5	20	33
AUG											
05...	110	--	25	11	14	0.6	2.4	100	--	17	21

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUB-PRENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
15...	0.10	26	218	2.17	1	1.57	0.030	1.60	0.080	0.22
DEC										
10...	--	--	--	--	15	1.49	0.010	1.50	0.010	0.19
FEB 1992										
25...	--	--	--	--	9	1.59	0.010	1.60	0.020	--
APR										
01...	0.20	20	190	6.04	11	1.18	0.020	1.20	0.040	0.16
JUN										
08...	0.20	26	269	12.3	9	0.990	0.010	1.00	0.010	--
AUG										
05...	0.10	19	169	8.67	224	0.820	0.020	0.840	0.030	0.67

K = non-ideal count

## RIO DE LA PLATA BASIN

50044850 RIO GUADIANA NEAR NARANJITO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
15...	0.30	1.9	8.4	0.470	<1	<100	60	<1	1	<10
DEC 10...	0.20	1.7	7.5	0.320	--	--	--	--	--	--
FEB 1992										
25...	<0.20	--	--	0.280	--	--	--	--	--	--
APR 01...	0.20	1.4	6.2	0.160	1	<100	20	<1	8	10
JUN 08...	<0.20	--	--	0.180	--	--	--	--	--	--
AUG 05...	0.70	1.5	6.8	0.410	--	--	--	--	--	--

[illegible]

## RIO DE LA PLATA BASIN

## 50045000 LAGO LA PLATA AT DAMSITE, PR

LOCATION.--Lat 18°20'40", long 66°14'10", Hydrologic Unit 21010005, 2.9 mi (4.7 km) at northeast of Plaza de Naranjito, 2.7 mi (4.3 km) West of Road 167, km 15.3, Buena Vista, Bayamón, 5.2 mi (8.4 km) east of Plaza de Corozal.

DRAINAGE AREA.--181 mi<sup>2</sup> (469 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--February 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago La Plata first construction phase was completed in 1974 and the second construction phase to provide the spillway with bascule gates was completed in October 1989. The maximum storage is 37,000 ac-ft (45.6 hm<sup>3</sup>) and its purpose is the supply of water for domestic and industrial use. La Plata Dam is a concrete gravity structure located across the Río de la Plata, the dam has an overall length of 774 ft (236 m) and a maximum height of about 131 ft (40 m). The dam spillway is provided with 6 bascule gates. The spillway crest has a total clear length of 690 ft (210 m), an elevation of 155 ft (47 m). The Dam is owned and operated by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 167.02 ft (50.91 m), Jan. 5, 1992; minimum elevation, 144.88 ft (44.16 m), Oct. 29, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 167.02 ft (50.91 m), Jan. 5; minimum elevation, 144.88 ft (44.16 m), Oct. 29.

Capacity Table  
(based on data from Puerto Rico Aqueduct and Sewer Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
98.43	2,760	164.05	28,550
131.24	11,360	170.61	33,160
154.60	22,720	175.52	37,040

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148.72	146.45	151.12	147.57	154.68	153.25	152.10	154.65	154.92	153.88	149.93	152.72
2	148.88	146.72	151.06	147.39	154.64	153.10	154.50	154.92	154.96	153.73	149.80	152.55
3	148.87	146.83	151.02	147.22	154.76	152.93	154.87	154.83	154.92	153.55	149.67	152.42
4	148.83	146.82	151.00	147.04	154.88	152.82	154.78	154.73	154.88	153.36	149.66	152.31
5	148.75	146.81	151.01	166.92	154.82	152.69	154.67	154.63	154.85	153.17	150.56	152.33
6	148.58	146.79	150.95	A	154.77	152.53	154.50	154.78	154.80	152.97	155.14	152.44
7	148.45	147.43	150.83	155.21	154.85	152.39	154.46	154.71	154.79	152.79	155.11	152.34
8	148.51	148.76	150.73	155.13	154.87	152.30	154.33	154.66	154.79	152.70	155.02	152.18
9	148.43	149.76	150.66	155.05	154.81	152.16	154.21	154.56	154.81	152.68	155.15	152.04
10	148.32	150.06	150.52	155.04	154.77	152.14	154.30	154.49	154.81	152.56	154.95	151.98
11	148.16	150.12	150.36	154.97	154.72	152.12	154.19	154.45	154.88	152.45	154.84	151.87
12	148.04	150.11	150.23	154.95	154.77	152.00	154.06	154.28	154.96	152.30	154.85	151.70
13	147.83	150.12	150.08	154.99	154.75	151.93	153.92	154.09	154.92	152.16	154.81	151.53
14	147.64	150.01	149.93	154.96	154.69	151.81	153.89	153.89	154.95	152.05	154.81	151.33
15	147.42	149.90	149.78	154.90	154.64	151.68	153.76	153.68	154.91	151.96	154.75	151.16
16	147.21	149.81	149.16	155.36	154.54	151.50	153.66	153.97	154.90	151.86	154.71	151.02
17	146.97	149.73	149.30	154.94	154.47	151.39	153.95	154.19	154.87	151.77	154.67	150.98
18	146.79	149.70	149.09	154.88	154.38	151.35	153.88	154.76	154.89	151.67	154.58	150.99
19	146.58	149.53	148.89	154.84	154.26	151.28	153.76	155.12	154.82	151.60	154.47	151.41
20	146.41	149.38	148.84	154.84	154.16	151.13	154.83	154.93	154.76	151.45	154.33	153.83
21	146.23	149.28	148.97	154.83	154.06	150.99	154.97	155.37	154.81	151.31	154.21	155.37
22	146.01	149.31	149.02	154.82	153.98	150.92	154.82	155.02	155.00	151.17	154.07	155.04
23	145.82	149.41	148.91	154.81	153.85	150.79	154.67	156.83	154.92	151.14	153.94	154.92
24	145.64	149.87	148.77	154.81	153.76	150.65	154.50	155.29	154.82	151.23	153.77	154.81
25	145.50	150.27	148.56	154.81	153.67	150.48	154.31	155.16	154.72	151.08	153.60	154.72
26	145.41	150.35	148.39	154.82	153.60	150.31	154.14	155.48	154.62	150.95	153.46	154.58
27	145.22	150.33	148.22	154.80	153.52	150.87	153.95	155.03	154.47	150.84	153.35	154.46
28	145.01	150.83	148.15	154.80	153.44	152.29	153.74	154.92	154.33	150.65	153.21	154.29
29	144.96	151.07	147.99	154.79	153.33	152.41	153.88	154.90	154.18	150.42	153.09	154.10
30	145.23	151.14	147.85	154.74	---	152.29	153.96	154.86	154.06	150.23	152.96	153.99
31	146.15	---	147.71	154.70	---	152.22	---	154.95	---	150.10	152.85	---
MEAN	147.12	149.22	149.58	---	154.36	151.83	154.19	154.78	154.78	151.93	153.56	152.85
MAX	148.88	151.14	151.12	---	154.88	153.25	154.97	156.83	155.00	153.88	155.15	155.37
MIN	144.96	146.45	147.71	---	153.33	150.31	152.10	153.68	154.06	150.10	149.66	150.98

A No gage-height record.

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR

LOCATION.--Lat 18°20'45", long 66°14'17", Hydrologic Unit 21010005, 2.8 mi (4.5 km) west of Road 167, km 15.3, Buena Vista, Bayamón, 5.0 mi (8.0 km) east of Plaza de Corozal, 3.0 mi (4.8 km) northeast of Plaza de Naranjito.

DRAINAGE AREA.--173 mi<sup>2</sup> (448 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 164 ft (30 m), from topographic map.

REMARKS.--Records poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.16	.15	.10	2.4	.00	.01	.27	105	.02	.01	.00
2	.00	.35	.15	.09	.78	.00	.00	209	108	.02	.00	.00
3	.00	.40	.18	.06	2.1	.00	29	91	91	.02	.00	.00
4	.00	.25	.23	.04	50	.00	20	13	42	.02	.12	.00
5	.00	.15	.14	16300	53	.00	2.9	1.3	24	.02	.49	.00
6	.00	.10	.11	27400	26	.00	.36	10	15	.01	112	.01
7	.00	.02	.08	1500	30	.00	.08	12	8.8	.01	295	.01
8	.00	.00	.12	576	61	.00	.02	2.9	7.5	.02	160	.00
9	.00	.01	.21	360	43	.00	.00	.36	10	.25	154	.00
10	.00	.01	.21	374	24	.00	.00	.07	8.6	.12	148	.00
11	.00	.02	.15	279	13	.00	.00	.01	160	.16	57	.00
12	.00	.02	.12	201	17	.00	.00	.01	183	.19	30	.00
13	.00	.06	.12	220	19	.00	.00	.00	294	.11	29	.00
14	.00	.06	.25	213	7.4	.00	.00	.00	309	.11	17	.00
15	.00	.06	.14	137	1.7	.00	.00	.00	172	.08	14	.00
16	.00	.04	.12	226	.42	.00	.00	1.5	112	.12	9.1	.00
17	.00	.04	.10	531	.17	.00	.00	.47	78	.14	3.8	.00
18	.00	.02	.10	207	.09	.00	.00	4.6	48	.12	.93	.00
19	.00	.02	.02	109	.06	.00	.00	158	37	.09	.13	.07
20	.00	.02	.20	63	.03	.00	6.7	154	18	.12	.03	.34
21	.00	.13	.38	47	.02	.00	95	430	11	.09	.01	350
22	.00	.49	.17	41	.03	.01	46	305	104	.14	.00	371
23	.00	.26	.12	33	.02	.00	10	1020	99	.10	.00	149
24	.00	.78	.10	27	.01	.00	.54	3840	50	.13	.00	44
25	.01	.31	.08	28	.01	.00	.05	705	18	.14	.00	9.0
26	.11	.18	.06	30	.00	.00	.00	4520	2.7	.14	.13	.69
27	.13	.15	.06	26	.00	.46	.00	796	.37	.10	.07	.03
28	.12	.24	.17	23	.00	1.7	.00	365	.14	.11	.01	.01
29	.43	.28	.25	24	.00	.85	.05	209	.06	.09	.00	.01
30	.46	.18	.15	14	---	.16	.36	140	.03	.04	.00	.01
31	.22	---	.11	7.6	---	.03	---	86	---	.02	.00	---
TOTAL	1.49	4.81	4.55	48996.89	351.24	3.21	211.07	13074.49	2116.20	2.85	1030.83	924.18
MEAN	.048	.16	.15	1581	12.1	.10	7.04	422	70.5	.092	33.3	30.8
MAX	.46	.78	.38	27400	61	1.7	95	4520	309	.25	295	371
MIN	.00	.00	.02	.04	.00	.00	.00	.00	.03	.01	.00	.00
AC-FT	3.0	9.5	9.0	97190	697	6.4	419	25930	4200	5.7	2040	1830
CFSM	.00	.00	.00	9.15	.07	.00	.04	2.44	.41	.00	.19	.18
IN.	.00	.00	.00	10.55	.08	.00	.05	2.81	.46	.00	.22	.20

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	MEAN	437	47.5	28.4	550	77.5	44.8	14.9	162	30.0	21.8	8.34	273
MAX	1107	107	84.8	1581	222	83.2	27.7	422	70.5	64.7	33.3	1047	
(WY)	1991	1991	1991	1992	1991	1990	1990	1992	1992	1991	1992	1989	
MIN	.048	.16	.14	.19	.27	.10	7.04	2.00	.16	.092	.020	.001	
(WY)	1992	1992	1990	1990	1990	1992	1992	1991	1991	1992	1989	1991	

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1989 - 1992	
ANNUAL TOTAL	12317.15		66721.81		121	
ANNUAL MEAN	33.7		182		182	
HIGHEST ANNUAL MEAN					37.8	
LOWEST ANNUAL MEAN					1990	
HIGHEST DAILY MEAN	1330	Jul 16	27400	Jan 6	27400	Jan 6 1992
LOWEST DAILY MEAN	.00	Jun 17	.00	Oct 2	.00	Jul 14 1989
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 7	.00	Oct 2	.00	Jul 14 1989
INSTANTANEOUS PEAK FLOW			127000	Jan 5	127000	Jan 5 1992
INSTANTANEOUS PEAK STAGE			34.76	Jan 5	34.76	Jan 5 1992
ANNUAL RUNOFF (AC-FT)	24430		132300		87900	
ANNUAL RUNOFF (CFSM)	.20		1.05		.70	
ANNUAL RUNOFF (INCHES)	2.65		14.36		9.54	
10 PERCENT EXCEEDS	83		148		174	
50 PERCENT EXCEEDS	.23		.12		.49	
90 PERCENT EXCEEDS	.00		.00		.00	

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA AT BELOW LA PLATA DAM, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

INSTRUMENTATION.-- Automatic sediment sampler and DH-48.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to September 1992

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,180 mg/L Jan. 06, 1992; Minimum daily mean, &lt;.05 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 362,000tons (328,000tonnes) Jan. 06, 1992; Minimum daily mean, 0.00 ton (0.00 tonne) several days.

EXTREMES FOR WATER YEARS 1990-92.--

Water Year	Suspended-sediment concentration (mg/L)		Suspended-sediment discharge (tons per day)	
	maximum	minimum	maximum	minimum
1990	848 (Mar. 14)	<.05 (Several days)	259 (Oct. 23)	.00 (Several days)
1991	243 (Oct. 21)	<.05 (Several days)	5,760 (Oct. 21)	.00 (Several days)
1992	2,180 (Jan. 06)	<.05 (Several days)	362,000 (Jan. 06)	.00 (Several days)

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN	MEAN	SEDIMENT DISCHARGE (TONS/DAY)	MEAN	MEAN	SEDIMENT DISCHARGE (TONS/DAY)	MEAN	MEAN	SEDIMENT DISCHARGE (TONS/DAY)
	DISCHARGE	CONCEN- TRATION		DISCHARGE	CONCEN- TRATION		DISCHARGE	CONCEN- TRATION	
	(CFS)	(MG/L)		(CFS)	(MG/L)		(CFS)	(MG/L)	
OCTOBER			NOVEMBER			DECEMBER			
1	159	17	7.5	114	14	4.4	.10	<.5	.00
2	246	24	16	77	11	2.3	.07	<.5	.00
3	196	21	11	50	8	1.1	.04	<.5	.00
4	223	22	13	37	7	.66	.03	<.5	.00
5	234	22	14	40	7	.76	.03	<.5	.00
6	170	19	8.5	90	12	3	.02	<.5	.00
7	109	14	4	87	12	2.8	.02	<.5	.00
8	89	12	2.9	87	12	2.8	.01	<.5	.00
9	76	11	2.3	92	12	3.1	.01	<.5	.00
10	68	10	1.9	55	9	1.3	.01	<.5	.00
11	62	10	1.6	38	7	.69	.01	<.5	.00
12	54	9	1.3	34	7	.61	.02	<.5	.00
13	45	8	.93	33	6	.54	.02	<.5	.00
14	56	9	1.4	33	6	.54	.02	<.5	.00
15	47	8	1	28	6	.42	.04	<.5	.00
16	36	6	.63	24	5	.32	.09	<.5	.00
17	275	26	19	20	4	.24	.13	<.5	.00
18	170	19	8.5	17	4	.19	.13	<.5	.00
19	74	11	2.2	29	6	.44	.13	<.5	.00
20	65	10	1.8	25	5	.34	.18	<.5	.00
21	263	25	18	17	4	.19	.18	<.5	.00
22	503	38	52	10	4	.10	.17	<.5	.00
23	1310	73	259	6.2	4	.06	.16	<.5	.00
24	687	48	89	4.1	3	.00	.15	<.5	.00
25	184	20	9.7	3.1	2	.02	.12	<.5	.00
26	290	27	21	1.8	2	.01	.10	<.5	.00
27	204	22	12	.81	<.5	.00	.10	<.5	.00
28	94	13	3.2	.38	<.5	.00	.16	3	.00
29	.84	13	3.2	.25	<.5	.00	1.1	<.5	.01
30	152	17	7.1	.15	<.5	.00	.74	<.5	.00
31	103	13	3.7	---	---	---	.39	<.5	.00
TOTAL	6328	---	597.36	1053.79	---	26.93	4.48	---	0.01

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	.31	<.5	.00	.18	<.5	.00	.34	<.5	.00
2	.27	<.5	.00	.11	<.5	.00	.33	<.5	.00
3	.22	<.5	.00	.15	<.5	.00	.28	<.5	.00
4	.19	<.5	.00	.13	<.5	.00	.33	<.5	.00
5	.15	<.5	.00	.12	<.5	.00	.20	<.5	.00
6	.15	<.5	.00	.05	<.5	.00	.13	<.5	.00
7	.15	<.5	.00	.09	<.5	.00	.08	<.5	.00
8	.13	<.5	.00	.28	<.5	.00	.04	<.5	.00
9	.13	<.5	.00	.26	<.5	.00	.22	<.5	.00
10	.13	<.5	.00	.15	<.5	.00	.31	<.5	.00
11	.12	<.5	.00	.08	<.5	.00	1.7	2	.01
12	.11	<.5	.00	.03	<.5	.00	2.8	3	.02
13	.10	<.5	.00	.01	<.5	.00	511	38	53
14	.07	<.5	.00	.95	<.5	.01	848	55	126
15	.12	<.5	.00	.62	<.5	.00	51	9	1.5
16	.10	<.5	.00	.44	<.5	.00	178	19	9.2
17	.17	<.5	.00	.30	<.5	.00	269	25	18
18	.15	<.5	.00	.23	<.5	.00	187	20	10
19	.11	<.5	.00	.48	<.5	.00	104	13	3.7
20	.53	<.5	.00	.32	<.5	.00	56	9	1.4
21	.50	<.5	.00	.22	<.5	.00	54	9	1.3
22	.27	<.5	.00	.28	<.5	.00	48	8	1
23	.17	<.5	.00	.50	<.5	.00	44	7	.89
24	.31	<.5	.00	.58	<.5	.00	41	7	.79
25	.20	<.5	.00	.34	<.5	.00	36	6	.63
26	.12	<.5	.00	.26	<.5	.00	31	6	.49
27	.10	<.5	.00	.21	<.5	.00	28	6	.42
28	.11	<.5	.00	.20	<.5	.00	25	5	.34
29	.17	<.5	.00	---	---	---	22	5	.28
30	.28	<.5	.00	---	---	---	20	4	.24
31	.34	<.5	.00	---	---	---	18	4	.10
TOTAL	5.98	---	0.00	7.57	---	0.01	2577.76	---	---



50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	16	4	.17	45	8	.93	3.4	2	.02
2	14	4	.15	42	7	.82	3.1	2	.02
3	12	4	.12	36	6	.63	2.5	3	.02
4	10	4	.10	30	6	.47	2.4	3	.02
5	8.2	4	.08	26	5	.37	2.7	3	.02
6	6.5	3	.06	22	5	.28	2.3	3	.02
7	5.3	3	.04	22	5	.28	1.7	3	.01
8	4.2	3	.03	257	24	17	1.4	3	.01
9	3.4	2	.02	663	46	82	1.1	3	.01
10	3.0	2	.02	71	10	2	1.2	3	.01
11	2.0	2	.01	76	11	2.3	1.1	3	.01
12	1.7	2	.01	74	11	2.2	.96	4	.01
13	1.0	4	.01	71	10	2	.90	<.5	.01
14	.67	<.5	.00	71	10	2	1.3	3	.01
15	.36	<.5	.00	67	10	1.8	168	18	8.4
16	.25	<.5	.00	61	10	1.6	260	24	17
17	1.8	2	.01	50	8	1.1	89	12	2.9
18	12	4	.12	40	7	.76	26	6	.40
19	16	4	.17	31	6	.49	5.7	3	.05
20	58	9	31.4	25	5	.34	1.4	3	.01
21	98	13	3.4	30	6	.47	.80	<.5	.00
22	92	12	3.1	24	5	.32	.67	<.5	.00
23	58	9	1.4	20	4	.24	.67	<.5	.00
24	31	6	.49	17	4	.19	.62	<.5	.00
25	32	6	.52	14	4	.15	.81	<.5	.00
26	76	11	2.3	11	4	.11	.66	<.5	.00
27	81	11	2.5	9.7	4	.10	.58	<.5	.00
28	73	11	2.1	8.2	4	.08	.55	<.5	.00
29	64	10	1.7	6.0	3	.05	.51	<.5	.00
30	51	9	1.2	5.0	3	.04	.52	<.5	.00
31	---	---	---	4.0	3	.03	---	---	---
TOTAL	832.38	---	51.23	1928.9	---	121.15	582.55	---	---

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	.63	<.5	.00	.16	<.5	.00	.00	<.5	.00
2	.64	<.5	.00	.14	<.5	.00	.00	<.5	.00
3	.57	<.5	.00	.17	<.5	.00	.01	<.5	.00
4	.35	<.5	.00	.08	<.5	.00	.08	<.5	.00
5	.29	<.5	.00	.04	<.5	.00	.41	<.5	.00
6	.20	<.5	.00	.02	<.5	.00	.40	<.5	.00
7	.15	<.5	.00	.06	<.5	.00	1.2	<.5	.00
8	.12	<.5	.00	.10	<.5	.00	.91	<.5	.00
9	.13	<.5	.00	.06	<.5	.00	.53	<.5	.00
10	.28	<.5	.00	.24	<.5	.00	.43	<.5	.00
11	.12	<.5	.00	.27	<.5	.00	.83	<.5	.00
12	.03	<.5	.00	.13	<.5	.00	.92	<.5	.00
13	.00	<.5	.00	.14	<.5	.00	.59	<.5	.00
14	.00	<.5	.00	.23	<.5	.00	.73	<.5	.00
15	.00	<.5	.00	.12	<.5	.00	1.2	3	.01
16	.31	<.5	.00	.05	<.5	.00	1.3	3	.01
17	1.4	5	.01	.02	<.5	.00	1.1	3	.01
18	.79	<.5	.00	.01	<.5	.00	1.2	3	.01
19	.82	<.5	.00	.01	<.5	.00	1.7	2	.01
20	2.0	2	.01	.00	<.5	.00	1.7	2	.01
21	.98	4	.01	.00	<.5	.00	1.4	3	.01
22	.67	<.5	.00	.00	30	.00	.82	<.5	.00
23	.36	<.5	.00	.00	<.5	.00	.48	<.5	.00
24	.43	<.5	.00	.00	<.5	.00	.33	<.5	.00
25	.39	<.5	.00	.08	<.5	.00	.31	<.5	.00
26	.28	<.5	.00	.11	<.5	.00	171	19	8.6
27	.20	<.5	.00	.02	<.5	.00	154	17	7.2
28	.14	<.5	.00	.00	<.5	.00	80	12	2.5
29	1.0	<.5	.00	.00	<.5	.00	29	6	.44
30	.66	<.5	.00	.00	<.5	.00	8.2	4	.08
31	.30	<.5	.00	.00	<.5	.00	---	---	---
TOTAL	14.24	---	0.03	2.26	---	0.00	460.78	---	18.89
YEAR	13798.69		1073.58						

RIO DE LA PLATA BASIN

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50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	110	14	4.1	218	22	13	166	18	8.2
2	140	16	6.2	182	20	10	152	17	7.1
3	88	12	2.9	178	19	9.2	377	31	32
4	107	13	3.9	154	17	7.2	298	27	22
5	95	12	3.2	155	17	7.3	152	17	7.1
6	65	10	1.8	171	17	8.6	86	12	2.8
7	629	13	73	149	17	6.8	53	8	1.2
8	218	22	13	124	15	5	37	7	.66
9	579	42	65	125	15	5.1	28	6	.42
10	1060	65	186	120	15	4.8	22	5	.28
11	410	33	37	101	13	3.6	18	4	.20
12	145	17	6.5	92	12	3.1	16	4	.17
13	417	34	38	82	12	2.7	19	4	.22
14	521	39	55	69	11	2	16	4	.17
15	1180	69	220	62	10	1.6	16	4	.17
16	2720	115	840	63	10	1.7	31	6	.49
17	1500	79	320	70	11	2	35	6	.60
18	2050	94	522	67	11	1.9	26	5	.37
19	3470	134	1260	90	12	3	13	4	.14
20	484	37	48	65	10	1.8	5.6	33	.05
21	8790	243	5760	78	11	2.4	2.1	2	.01
22	1010	63	173	110	14	4.1	1.5	2	.01
23	391	32	34	102	13	3.6	1.3	3	.01
24	308	28	23	102	13	3.6	1.5	2	.01
25	845	55	126	84	12	2.7	1.7	2	.01
26	3810	142	1460	51	9	1.2	1.4	3	.01
27	1670	84	378	55	9	1.3	1.2	3	.01
28	572	41	64	54	9	1.3	5.3	3	.04
29	374	32	32	55	9	1.3	52	8	1.2
30	254	25	17	185	20	9.8	182	19	9.5
31	302	27	22	---	---	---	813	53	117
TOTAL	34314	---	11794.6	3213	---	131.7	2629.6	---	212.15

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	686	46	86	2.2	2	.01	75	11	2.2
2	224	23	14	2.1	2	.01	91	12	3
3	123	15	5	2.0	2	.01	92	12	3.1
4	81	11	2.5	3.3	2	.02	54	9	1.3
5	56	9	1.4	1020	64	175	37	7	.66
6	108	14	4	452	35	43	34	6	.57
7	121	15	4.8	337	29	26	38	7	.69
8	69	11	2	202	20	11	44	7	.89
9	71	10	2	117	15	4.6	47	8	1
10	101	13	3.6	77	11	2.3	35	6	.60
11	88	12	2.9	180	19	9.4	33	6	.54
12	72	11	2.1	291	27	21	34	6	.57
13	55	9	1.3	1070	65	189	31	6	.49
14	48	8	1	329	28	25	29	6	.44
15	41	7	.79	207	21	12	24	5	.32
16	39	7	.72	109	14	4	15	4	.16
17	32	6	.52	96	13	3.3	7.3	4	.07
18	26	5	.37	165	18	8.1	4.1	3	.03
19	21	5	.26	350	30	28	1.6	2	.01
20	15	4	.16	289	27	21	1.2	3	.01
21	10	4	.10	246	24	16	.50	1	.00
22	6.7	3	.06	192	19	10	217	22	13
23	5.3	3	.04	135	16	5.8	267	25	18
24	6.3	3	.06	91	12	3	123	15	5
25	7.1	4	.07	68	10	1.9	38	7	.69
26	6.3	3	.06	60	9	1.5	9.4	4	.09
27	2.5	3	.02	62	10	1.6	86	12	2.8
28	1.9	2	.01	72	11	2.1	74	11	2.2
29	1.9	2	.01	---	---	---	28	6	.42
30	1.7	2	.01	---	---	---	8.7	3	.08
31	2.1	2	.01	---	---	---	2.8	3	.02
TOTAL	2128.8	---	135.87	6226.6	---	624.65	1581.60	---	58.95

RIO DE LA PLATA BASIN

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50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	2.0	2	.01	1.1	3	.01	.46	<.5	.00
2	1.9	2	.01	1.1	33	.01	.41	<.5	.00
3	2.7	3	.02	1.2	3	.01	.29	<.5	.00
4	2.9	3	.02	1.6	3	.01	.23	<.5	.00
5	3.0	2	.02	1.2	3	.01	.17	<.5	.00
6	2.9	3	.02	1.1	3	.01	.15	<.5	.00
7	2.9	3	.02	1.0	4	.01	.15	<.5	.00
8	3.8	3	.03	2.5	3	.02	.12	<.5	.00
9	4.2	3	.03	1.5	2	.01	.10	<.5	.00
10	3.2	2	.02	.68	<.5	.00	.07	<.5	.00
11	3.4	2	.02	.49	<.5	.00	.04	<.5	.00
12	3.5	2	.02	.48	<.5	.00	.04	<.5	.00
13	4.5	3	.04	.62	<.5	.00	.03	<.5	.00
14	3.6	3	.03	14	4	.15	.02	<.5	.00
15	68	10	1.9	22	5	.28	.01	<.5	.00
16	107	13	3.9	5.7	3	.05	.01	<.5	.00
17	38	7	.69	.77	<.5	.00	.00	<.5	.00
18	11	4	.11	.33	<.5	.00	.45	<.5	.00
19	3.9	3	.03	.29	<.5	.00	.47	<.5	.00
20	3.3	3	.03	.26	<.5	.00	.28	<.5	.00
21	3.3	2	.02	.25	<.5	.00	.17	<.5	.00
22	3.1	2	.02	.17	<.5	.00	.10	<.5	.00
23	2.3	3	.02	.14	<.5	.00	.19	<.5	.00
24	1.9	2	.01	.12	<.5	.00	.17	<.5	.00
25	1.8	2	.01	1.4	3	.01	.12	<.5	.00
26	1.7	2	.01	.62	<.5	.00	.08	<.5	.00
27	1.5	2	.01	.42	<.5	.00	.03	<.5	.00
28	1.4	3	.01	.29	<.5	.00	.02	<.5	.00
29	1.3	3	.01	.23	<.5	.00	.02	<.5	.00
30	1.2	3	.01	.19	<.5	.00	.41	<.5	.00
31	---	---	---	.26	<.5	.00	---	---	---
TOTAL	295.2	---	7.10	62.01	---	0.59	4.81	---	0.00

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	.45	<.5	.00	.39	<.5	.00	e.00	<.5	e.00
2	.27	<.5	.00	.17	<.5	.00	e.00	<.5	e.00
3	.20	<.5	.00	.08	<.5	.00	e.00	<.5	e.00
4	.21	<.5	.00	.03	<.5	.00	e.00	<.5	e.00
5	.16	<.5	.00	.01	<.5	.00	e.00	<.5	e.00
6	.09	<.5	.00	.01	<.5	.00	e.00	<.5	e.00
7	.25	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
8	.44	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
9	.31	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
10	.20	<.5	.00	.00	<.5	.00	e.02	<.5	e.00
11	.13	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
12	.07	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
13	.05	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
14	.02	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
15	.05	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
16	1330	74	265	.00	<.5	.00	e.00	<.5	e.00
17	507	38	52	.00	<.5	.00	e.00	<.5	e.00
18	121	15	4.8	.00	<.5	.00	e.00	<.5	e.00
19	36	6	.63	.00	<.5	.00	e.00	<.5	e.00
20	7.0	3	.06	.00	<.5	.00	e.00	<.5	e.00
21	1.0	4	.01	.00	<.5	.00	e.00	<.5	e.00
22	.38	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
23	.18	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
24	.11	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
25	.08	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
26	.04	<.5	.00	.00	<.5	.00	e.00	<.5	e.00
27	.03	<.5	.00	e.02	<.5	e.00	.00	<.5	.00
28	.10	<.5	.00	e.03	<.5	e.00	.00	<.5	.00
29	.15	<.5	.00	e.02	<.5	e.00	.01	<.5	.00
30	.07	<.5	.00	e.03	<.5	e.00	.01	<.5	.00
31	.39	<.5	.00	e.02	<.5	e.00	---	---	---
TOTAL	2006.43	---	322.50	0.81	---	0.00	0.04	---	0.00
YEAR	52462.90		13288.11						

e Estimated

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	.01	5	.00	.16	4	.00	.15	5	.00
2	.00	5	.00	.35	4	.00	.15	5	.00
3	.00	5	.00	.40	4	.00	.18	5	.00
4	.00	5	.00	.25	4	.00	.23	5	.00
5	.00	5	.00	.15	4	.00	.14	5	.00
6	.00	5	.00	.10	4	.00	.11	5	.00
7	.00	5	.00	.02	4	.00	.08	5	.00
8	.00	5	.00	.00	5	.00	.12	5	.00
9	.00	5	.00	.01	4	.00	.21	5	.00
10	.00	5	.00	.01	5	.00	.21	5	.00
11	.00	5	.00	.02	4	.00	.15	5	.00
12	.00	5	.00	.02	5	.00	.12	5	.00
13	.00	5	.00	.06	6	.00	.12	5	.00
14	.00	5	.00	.06	6	.00	.25	5	.00
15	.00	4	.00	.06	5	.00	.14	5	.00
16	.00	4	.00	.04	5	.00	.12	7	.00
17	.00	4	.00	.04	5	.00	.10	10	.00
18	.00	4	.00	.02	5	.00	.10	14	.00
19	.00	4	.00	.02	5	.00	.02	13	.00
20	.00	4	.00	.02	5	.00	.20	11	.00
21	.00	5	.00	.13	5	.00	.38	10	.01
22	.00	5	.00	.49	5	.01	.17	9	.00
23	.00	5	.00	.26	5	.01	.12	10	.00
24	.00	5	.00	.78	5	.01	.10	10	.00
25	.01	4	.00	.31	5	.00	.08	10	.00
26	.11	4	.00	.18	5	.00	.06	10	.00
27	.13	4	.00	.15	5	.00	.06	10	.00
28	.12	3	.00	.24	5	.00	.17	10	.00
29	.43	4	.01	.28	5	.00	.25	10	.00
30	.46	4	.00	.18	5	.00	.15	10	.00
31	.22	4	.00	---	---	---	.11	10	.00
TOTAL	1.49	---	0.01	4.81	---	0.03	4.55	---	0.01

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	.10	10	.00	2.4	1	.01	.00	1	.00
2	.09	10	.00	.78	1	.00	.00	1	.00
3	.06	10	.00	2.1	1	.03	.00	1	.00
4	.04	10	.00	50	12	1.8	.00	1	.00
5	16300	1870	305000	53	13	1.8	.00	1	.00
6	27400	2180	362000	26	7	.63	.00	1	.00
7	1500	199	965	30	7	.71	.00	1	.00
8	576	89	141	61	14	2.1	.00	1	.00
9	360	63	62	43	11	1.3	.00	1	.00
10	374	60	58	24	6	.42	.00	1	.00
11	279	126	113	13	4	.15	.00	1	.00
12	201	40	22	17	4	.21	.00	1	.00
13	220	40	22	19	5	.23	.00	1	.00
14	213	39	22	7.4	3	.07	.00	1	.00
15	137	30	13	1.7	3	.01	.00	1	.00
16	226	39	50	.42	4	.00	.00	1	.00
17	531	82	138	.17	5	.00	.00	1	.00
18	207	38	21	.09	12	.00	.00	1	.00
19	109	28	9.0	.06	14	.00	.00	1	.00
20	63	25	4.4	.03	8	.00	.00	1	.00
21	47	25	3.2	.02	5	.00	.00	1	.00
22	41	25	2.7	.03	5	.00	.01	1	.00
23	33	25	2.1	.02	4	.00	.00	1	.00
24	27	24	1.7	.01	2	.00	.00	1	.00
25	28	22	1.6	.01	1	.00	.00	1	.00
26	30	21	1.6	.00	1	.00	.00	1	.00
27	26	17	1.2	.00	1	.00	.46	1	.00
28	23	13	.83	.00	1	.00	1.7	1	.00
29	24	8	.52	.00	1	.00	.85	1	.00
30	14	5	.21	---	---	---	.16	1	.00
31	7.6	3	.06	---	---	---	.03	1	.00
TOTAL	48996.89	---	668656.12	351.24	---	9.47	3.21	---	0.00



## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	.01	1	.00	.27	1	.00	105	91	26
2	.00	1	.00	209	12	7.0	108	55	15
3	29	8	.84	91	13	3.9	91	61	14
4	20	5	.37	13	4	.22	42	56	6.5
5	2.9	1	.02	1.3	1	.00	24	45	2.9
6	.36	1	.00	10	3	.13	15	39	1.5
7	.08	1	.00	12	5	.16	8.8	37	.90
8	.02	1	.00	2.9	2	.03	7.5	37	.77
9	.00	1	.00	.36	1	.00	10	36	.84
10	.00	<.05	.00	.07	1	.00	8.6	34	.88
11	.00	1	.00	.01	1	.00	160	44	16
12	.00	1	.00	.01	1	.00	183	29	17
13	.00	1	.00	.00	1	.00	294	27	18
14	.00	1	.00	.00	1	.00	309	24	20
15	.00	1	.00	.00	1	.00	172	21	12
16	.00	1	.00	1.5	1	.01	112	20	5.8
17	.00	1	.00	.47	1	.00	78	20	4.0
18	.00	1	.00	4.6	2	.07	48	20	2.9
19	.00	1	.00	158	15	12	37	20	2.0
20	6.7	3	.15	154	20	8.2	18	18	.92
21	95	20	5.2	430	64	148	11	16	.70
22	46	15	2.0	305	33	48	104	23	6.9
23	10	3	.13	1020	91	1250	99	19	5.0
24	.54	1	.00	3840	411	6160	50	16	2.1
25	.05	1	.00	705	105	209	18	12	.69
26	.00	1	.00	4520	461	10200	2.7	10	.08
27	.00	1	.00	796	105	256	.37	10	.01
28	.00	1	.00	365	62	63	.14	9	.00
29	.05	1	.00	209	44	25	.06	7	.00
30	.36	1	.00	140	40	15	.03	6	.00
31	---	---	---	86	39	11	---	---	---
TOTAL	211.07	---	8.71	13074.49	---	18416.72	2116.20	---	183.39

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	.02	6	.00	.01	12	.00	.00	2	.00
2	.02	5	.00	.00	10	.00	.00	2	.00
3	.02	5	.00	.00	10	.00	.00	2	.00
4	.02	5	.00	.12	10	.00	.00	2	.00
5	.02	5	.00	.49	9	.01	.00	2	.00
6	.01	5	.00	112	10	3.7	.01	2	.00
7	.01	5	.00	295	6	5.3	.01	2	.00
8	.02	5	.00	160	7	3.1	.00	2	.00
9	.25	5	.00	154	9	3.7	.00	2	.00
10	.12	5	.00	148	10	4.1	.00	2	.00
11	.16	5	.00	57	14	2.8	.00	2	.00
12	.19	5	.00	30	8	.70	.00	2	.00
13	.11	5	.00	29	6	.49	.00	2	.00
14	.11	5	.00	17	5	.22	.00	2	.00
15	.08	5	.00	14	5	.20	.00	2	.00
16	.12	5	.00	9.1	5	.11	.00	2	.00
17	.14	2	.00	3.8	5	.05	.00	2	.00
18	.12	3	.00	.93	5	.01	.00	2	.00
19	.09	5	.00	.13	5	.00	.07	2	.00
20	.12	5	.00	.03	5	.00	.34	4	.00
21	.09	5	.00	.01	5	.00	350	6	4.6
22	.14	5	.00	.00	4	.00	e371	5	e5.9
23	.10	5	.00	.00	3	.00	149	3	1.5
24	.13	5	.00	.00	3	.00	44	2	.24
25	.14	6	.00	.00	2	.00	9.0	2	.06
26	.14	8	.00	.13	2	.00	.69	2	.00
27	.10	11	.00	.07	2	.00	.03	2	.00
28	.11	14	.00	.01	2	.00	.01	2	.00
29	.09	15	.00	.00	2	.00	.01	2	.00
30	.04	15	.00	.00	2	.00	.01	2	.00
31	.02	14	.00	.00	2	.00	---	---	---
TOTAL	2.85	---	0.00	1030.83	---	24.49	924.18	---	12.30
YEAR	66721.81		687311.25						

e Estimated

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
JAN 1992							
05...	1909	5530	7460	111000	39	53	59
05...	2219	12400	6680	230000	48	69	82
06...	0359	41200	10800	1200000	31	39	43

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
JAN 1992							
05...	69	80	97	99	99.7	99.8	100
05...	87	92	98	99	99.6	99.8	100
06...	51	63	86	97	99.3	99.8	100

## RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
JAN 1992					
05...	1849	1280	12800	44100	86
05...	2359	123000	6380	2120000	98
MAY					
26...	1744	2440	218	1430	97
26...	1944	2150	226	1310	96

## RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HIGHWAY 2 NEAR TOA ALTA, PR

LOCATION.--Lat 18°24'41", long 66°15'39", Hydrologic Unit 21010005, on left bank, at downstream side of bridge on Highway 2, 1.3 mi ( 2.1 km) downstream from Río Lajas, and 1.6 mi (2.6 km) northwest of Toa Alta, 11.3 mi (18.2 km) downstream from Puerto Rico Aqueduct and Sewer Authority reservoir.

DRAINAGE AREA.--208 mi<sup>2</sup> (539 km<sup>2</sup>), excludes 8.2 mi<sup>2</sup> (21.2 km<sup>2</sup>) upstream from Lago Carite, flow from which is diverted to Río Guamaní. Area at site used prior to September 25, 1984, 200 mi<sup>2</sup> (518 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1959 (measurement only), January 1960 to current year. Prior to October 1984, published as Río de la Plata at Toa Alta, PR; October 1984 to September 1988 published as 50046900.

GAGE.--Water-stage recorder. Datum of gage is 9.15 ft (2.789 m), above mean sea level. Prior to October, 1984, at site about 1.0 mi (1.6 km) upstream at mean sea level datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate discharges and elevations of major floods, as pointed out by local residents are as follows: Sept. 13, 1928, 120,000 ft<sup>3</sup>/s (3,400 m<sup>3</sup>/s), gage height, 37.4 ft (11.40 m); June 16, 1943, 82,000 ft<sup>3</sup>/s (2,322 m<sup>3</sup>/s), gage height, 34.4 ft (10.48 m), at site 1.0 mi upstream and different datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	55	22	18	23	12	19	29	92	17	14	14
2	29	69	22	17	19	11	17	253	95	17	14	11
3	17	83	34	15	19	12	18	156	85	16	18	13
4	14	55	46	16	80	12	13	59	61	16	71	17
5	25	59	25	5850	63	12	19	29	45	17	132	18
6	18	27	22	15900	48	11	18	90	45	17	93	48
7	15	19	16	2130	35	11	17	41	53	15	259	44
8	13	26	27	766	38	15	15	27	55	23	163	19
9	14	28	33	475	49	21	14	21	50	23	163	15
10	15	24	31	569	41	13	18	20	39	18	186	22
11	13	21	21	370	30	12	23	17	73	59	85	34
12	13	24	24	246	24	11	16	15	151	33	45	17
13	13	21	23	275	22	9.3	19	13	232	29	47	15
14	13	22	29	236	24	9.3	14	14	246	35	116	15
15	15	21	21	192	20	11	12	12	186	19	63	14
16	15	24	21	151	17	11	14	248	90	30	38	18
17	14	23	24	588	15	12	13	83	70	24	29	22
18	454	23	18	233	13	16	13	67	45	19	22	17
19	92	23	18	146	14	13	13	150	43	65	21	31
20	26	29	21	104	12	12	13	276	36	155	19	311
21	19	57	37	78	10	10	13	345	43	56	19	153
22	17	232	20	57	13	11	52	542	41	25	18	429
23	14	86	19	57	12	11	43	431	86	20	17	189
24	21	160	17	51	11	8.7	22	5060	62	60	18	95
25	67	54	16	45	11	7.9	15	805	40	37	15	51
26	45	35	16	45	9.5	8.5	13	4800	28	20	14	34
27	27	26	19	40	11	19	11	1010	24	29	16	24
28	39	23	18	38	11	133	11	444	21	35	13	22
29	61	25	19	38	11	121	12	402	19	19	12	19
30	76	24	20	e32	---	33	64	206	17	15	12	18
31	35	---	27	e29	---	21	---	117	---	14	26	---
TOTAL	1293	1398	726	28807	705.5	630.7	574	15782	2173	977	1778	1749
MEAN	41.7	46.6	23.4	929	24.3	20.3	19.1	509	72.4	31.5	57.4	58.3
MAX	454	232	46	15900	80	133	64	5060	246	155	259	429
MIN	13	19	16	15	9.5	7.9	11	12	17	14	12	11
AC-FT	2560	2770	1440	57140	1400	1250	1140	31300	4310	1940	3530	3470
CFSM	.21	.23	.12	4.65	.12	.10	.10	2.55	.36	.16	.29	.29
IN.	.24	.26	.14	5.36	.13	.12	.11	2.94	.40	.18	.33	.33
e Estimated												

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1992, BY WATER YEAR (WY)

	MEAN	515	460	346	195	136	109	197	369	172	147	266	329
MAX	4813	2015	1352	929	409	468	722	1939	847	690	1677	1691	
(WY)	1971	1985	1971	1992	1989	1969	1987	1985	1970	1961	1979	1960	
MIN	35.1	31.0	23.4	16.9	16.0	8.31	5.07	7.63	11.4	13.9	16.5	19.2	
(WY)	1974	1981	1992	1984	1983	1986	1984	1984	1977	1976	1976	1991	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1960 - 1992

ANNUAL TOTAL	26717	56593.2	
ANNUAL MEAN	73.2	155	268
HIGHEST ANNUAL MEAN			824
LOWEST ANNUAL MEAN			36.3
HIGHEST DAILY MEAN	2020	15900	40000
LOWEST DAILY MEAN	13	7.9	2.7
ANNUAL SEVEN-DAY MINIMUM	13	9.9	2.9
INSTANTANEOUS PEAK FLOW		118000	118000
INSTANTANEOUS PEAK STAGE		26.39	26.39
INSTANTANEOUS LOW FLOW			2.2
ANNUAL RUNOFF (AC-FT)	52990	112300	194200
ANNUAL RUNOFF (CFSM)	.37	.77	1.34
ANNUAL RUNOFF (INCHES)	4.97	10.54	18.23
10 PERCENT EXCEEDS	132	170	510
50 PERCENT EXCEEDS	28	23	94
90 PERCENT EXCEEDS	16	12	19

## RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR--Continued  
(National stream-quality accounting network station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)
OCT 1991											
02...	1000	30	422	7.0	26.5	4.0	6.0	86	3100	790	170
DEC											
17...	1045	24	541	7.0	24.0	1.4	7.6	71	270	320	220
FEB 1992											
21...	0915	11	505	7.6	25.5	3.3	6.6	89	K91	K60	210
APR											
14...	0910	14	510	7.1	26.5	2.4	6.2	77	200	K20	190
JUN											
29...	0930	20	414	7.6	29.0	3.2	7.0	89	K680	27	170
AUG											
17...	1055	31	432	7.3	29.0	10	3.3	74	K280	45	180

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
OCT 1991											
02...	52	9.4	20	0.7	3.4	150	18	27	0.10	14	245
DEC											
17...	70	11	24	0.7	2.5	200	23	34	0.20	17	313
FEB 1992											
21...	64	12	21	0.6	3.3	190	27	34	<0.10	15	300
APR											
14...	58	12	22	0.7	3.5	180	26	40	0.20	17	298
JUN											
29...	50	12	20	0.7	2.7	150	24	29	0.20	18	234
AUG											
17...	55	10	18	0.6	3.1	160	21	28	0.40	16	255

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
OCT 1991											
02...	238	19.7	0.790	0.080	0.10	0.50	0.250	0.240	0.220	0.67	10
DEC											
17...	304	20.5	0.530	<0.010	--	0.60	0.190	0.180	0.160	0.49	--
FEB 1992											
21...	293	8.83	0.510	0.100	0.13	1.0	0.170	0.120	0.100	0.31	20
APR											
14...	291	11	0.870	0.070	0.09	0.60	0.230	0.190	0.170	0.52	--
JUN											
29...	248	12.8	0.290	0.030	0.04	0.60	0.080	0.080	0.060	0.18	60
AUG											
17...	255	21.3	0.490	0.140	0.18	0.40	0.120	0.090	0.090	0.28	10

K = non-ideal count

## RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR--Continued  
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
OCT 1991											
02...	53	<3	11	<4	60	<10	<1	<1	<1.0	210	<6
DEC											
17...	--	--	--	--	--	--	--	--	--	--	--
FEB 1992											
21...	54	<3	<3	5	24	<10	3	<1	<1.0	270	<6
APR											
14...	--	--	--	--	--	--	--	--	--	--	--
JUN											
29...	51	<3	4	<4	99	<10	<1	<1	<1.0	220	10
AUG											
17...	62	<3	10	<4	130	<10	2	<1	<1.0	220	<6

## RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR--Continued  
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
02...	1000	30	32.7	2.65	92
DEC 1992					
17...	1045	24	113	7.32	64
FEB					
21...	0915	11	61.8	1.84	90
APR					
14...	0910	14	68	2.57	91
JUN					
29...	0930	20	17	0.92	96
AUG					
17...	1055	31	28	2.34	100

## PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1992										
29...	0930	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1992									
29...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1992									
29...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01



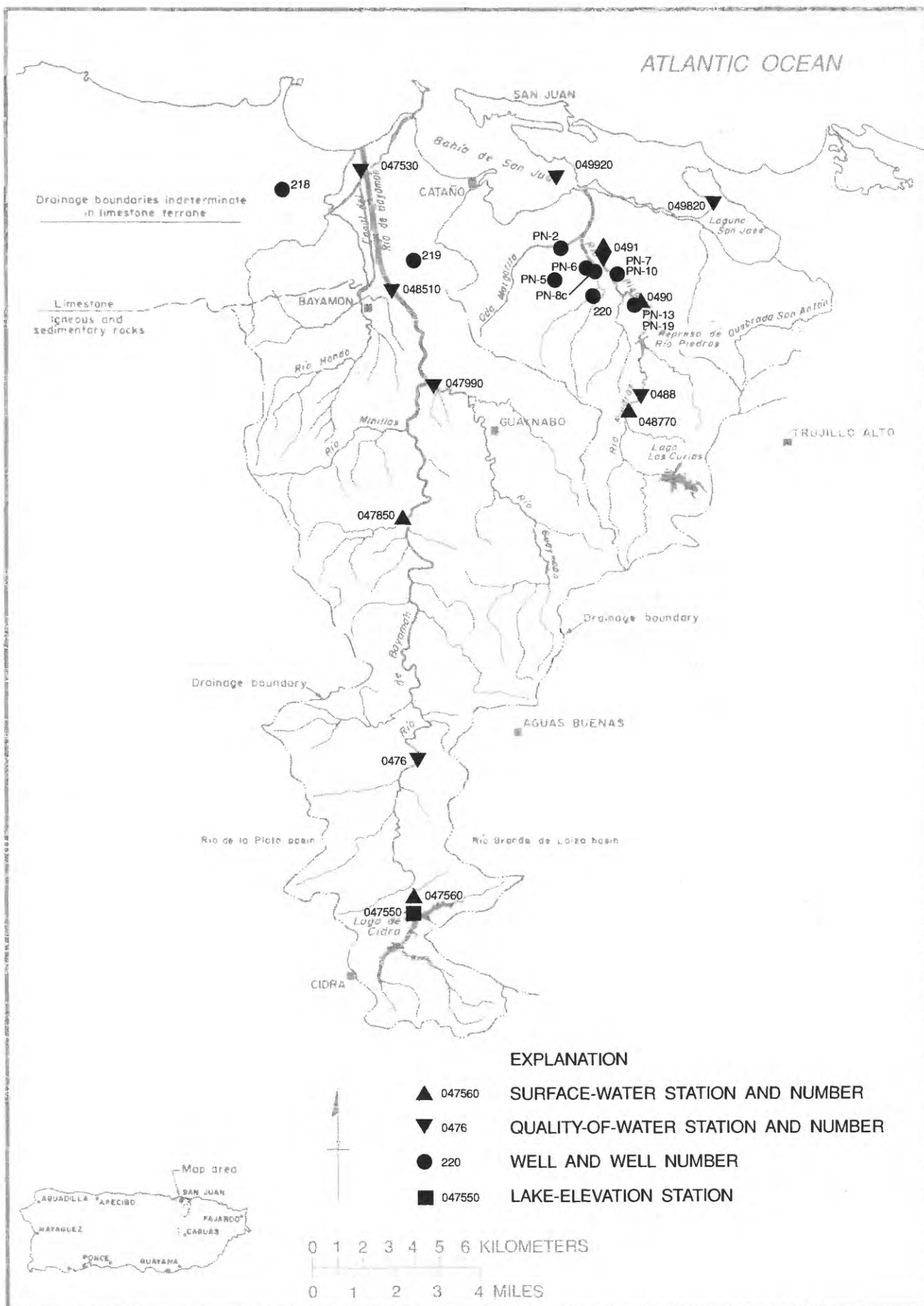


Figure 19.--Río Hondo to Río Puerto Nuevo basins.

## RIO HONDO BASIN

50047530 RIO HONDO AT FLOOD CHANNEL NEAR CATAÑO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°26'13", long 66°09'36", at Rio Hondo Channel, 800 ft (245 m) below junction with Rio Hondo, 0.9 mi (1.5 km) downstream from bridge on de Diego Expressway and 1.1 mi (1.8 km) above mouth.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
NOV 1991											
01...	0805	25	3900	7.6	24.5	24	4.7	34	24	32000	47000
JAN 1992											
02...	0810	--	17000	7.5	23.0	3.1	4.4	30	250	59000	31000
MAR											
02...	1030	--	35600	7.9	27.5	4.5	8.0	68	620	26000	4900
MAY											
22...	0845	34	1300	7.1	27.0	27	2.5	32	68	82000	35000
JUL											
10...	1005	--	9900	7.6	30.0	6.2	6.0	47	120	27000	8900

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 1991											
01...	260	170	44	37	300	8	15	100	<0.5	87	520
JAN 1992											
02...	--	--	--	--	--	--	--	200	--	--	--
MAR											
02...	--	--	--	--	--	--	--	150	--	--	--
MAY											
22...	440	300	59	72	540	14	28	140	<0.5	170	980
JUL											
10...	--	--	--	--	--	--	--	140	--	--	--

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
NOV 1991										
01...	0.10	8.8	1070	72	28	0.410	0.060	0.470	0.340	0.76
JAN 1992										
02...	--	--	--	--	19	0.090	0.070	0.160	2.00	0.50
MAR										
02...	--	--	--	--	30	0.100	0.090	0.190	1.20	0.0
MAY										
22...	0.30	12	1960	180	18	0.500	0.070	0.570	0.220	0.58
JUL										
10...	--	--	--	--	26	--	0.020	<0.050	0.400	0.80

## RIO HONDO BASIN

50047530 RIO HONDO AT FLOOD CHANNEL NEAR CATAÑO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
NOV 1991 01...	1.1	1.6	6.9	0.330	7	80	120	<1	<1	12
JAN 1992 02...	2.5	2.7	12	0.660	--	--	--	--	--	--
MAR 02...	1.2	1.4	6.2	0.410	--	--	--	--	--	--
MAY 22...	0.80	1.4	6.1	0.220	4	100	220	1	3	10
JUL 10...	1.2	--	--	0.500	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
NOV 1991 01...	1500	8	150	0.20	<1	<1	13	<0.010	2	0.12
JAN 1992 02...	--	--	--	--	--	--	--	--	--	--
MAR 02...	--	--	--	--	--	--	--	--	--	--
MAY 22...	640	6	130	0.10	<1	<1	20	<0.010	3	0.49
JUL 10...	--	--	--	--	--	--	--	--	--	--

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## RIO DE BAYAMON BASIN

50047550 LAGO CIDRA AT DAMSITE NEAR CIDRA, PR

LOCATION.--Lat 18°11'57", long 66°08'29", Hydrologic Unit 21010005, at Lago de Cidra Dam on Río de Bayamón, 1.9 mi (3.0 km) northeast of Plaza de Cidra and 1.8 mi (2.9 km) northwest of Escuela Segunda Unidad de Bayamón.

DRAINAGE AREA.--8.26 mi<sup>2</sup> (21.39 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--January 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago de Cidra was completed in 1946. The maximum storage is 5,300 ac-ft (6.53 hm<sup>3</sup>) and provides supplemental water to metropolitan San Juan. The dam is a concrete gravity and earthfill structure approximately 541 ft (165 m) long between abutments with a maximum structural height of about 78.7 ft (24.0 m). The spillway portion of the dam, length 131 ft (40 m) and crest elevation 1,322 ft (403 m), is an ungated ogee crest located 131 ft (40 m) from the right abutment. This dam is owned by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 1,323.99 ft (403.55 m), Feb. 3, 1988; minimum elevation 1,305.18 ft (397.82 m), Sept. 30, 1990.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 1,322.29 ft (403.03 m), Jan. 14; minimum elevation, 1,311.00 ft (399.59 m), Sept. 19.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
1,305	1,970	1,319	4,400
1,309	2,610	1,322	5,200
1,312	3,100	1,324	5,800

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1311.73	1311.40	A	1314.51	1321.49	1319.83	1316.36	1313.46	1316.44	1317.34	1315.44	1312.92
2	1311.92	1311.33	A	1314.37	1321.31	1319.66	1316.51	1313.51	1316.45	1317.40	1315.37	1312.68
3	1312.08	1311.32	A	1314.21	1321.12	1319.53	1316.40	1313.54	1316.48	1317.43	1315.27	1312.48
4	1312.16	1311.21	A	1314.04	1321.05	1319.41	1316.28	1313.50	1316.54	1317.38	1315.25	1312.32
5	1312.21	1311.15	A	A	1321.01	1319.29	1316.15	1313.43	1316.52	1317.36	1315.76	1312.30
6	1312.27	1311.13	A	A	1320.99	1319.16	1315.98	1313.38	1316.41	1317.33	1316.34	1312.30
7	1312.31	1311.81	A	A	1320.96	1319.05	1315.78	1313.29	1316.35	1317.32	1316.51	1312.17
8	A	A	A	A	1320.92	1318.92	1315.62	1313.21	1316.45	1317.33	1316.53	1312.06
9	A	A	A	A	1320.89	1318.78	1315.45	1313.15	1316.54	1317.29	1316.50	1312.09
10	A	A	A	A	1320.88	1318.67	1315.27	1313.09	1316.76	1317.20	1316.41	1311.96
11	A	A	A	A	1320.85	1318.59	1315.15	1313.01	1316.98	1317.14	1316.22	1311.82
12	A	A	1314.56	A	1320.81	1318.51	1315.07	1312.97	1317.18	1317.01	1316.11	1311.67
13	A	A	1314.81	A	1320.77	1318.40	1315.05	1312.96	1317.37	1316.97	1316.01	1311.49
14	A	A	1314.67	1322.22	1320.73	1318.33	1315.03	1312.95	1317.52	1316.90	1315.92	1311.31
15	A	A	1314.56	1322.02	1320.66	1318.26	1315.01	1312.96	1317.59	1316.84	1315.83	1311.15
16	1312.28	A	1314.63	1321.92	1320.62	1318.21	1314.95	1312.98	1317.67	1316.93	1315.67	1311.09
17	1312.23	A	1314.72	1321.89	1320.58	1318.18	1314.89	1313.01	1317.76	1316.97	1315.45	1311.12
18	1312.19	A	1314.78	1321.84	1320.52	1318.14	1314.81	1312.99	1317.85	1316.87	1315.30	1311.07
19	1312.17	A	1314.84	1321.79	1320.47	1318.17	1314.89	1312.96	1317.86	1316.80	1315.20	1311.27
20	1312.10	A	1315.08	1321.74	1320.43	1318.04	1314.85	1312.95	1317.78	1316.72	1315.09	1311.99
21	1312.00	A	1315.17	1321.66	1320.36	1317.87	1314.78	1313.35	1317.90	1316.61	1314.94	1312.75
22	1311.94	A	1315.27	1321.56	1320.39	1317.72	1314.74	1313.42	1317.99	1316.54	1314.77	1313.11
23	1311.84	A	A	1321.46	1320.43	1317.58	1314.61	1314.25	1317.92	1316.58	1314.61	1313.44
24	1311.78	A	A	1321.37	1320.36	1317.42	1314.39	1314.92	1317.91	1316.68	1314.41	1313.67
25	1311.74	1312.93	A	1321.36	1320.25	1317.25	1314.15	1315.35	1317.95	1316.64	1314.19	1313.83
26	1311.68	1313.12	A	1321.35	1320.22	1317.09	1313.92	1315.83	1317.89	1316.60	1314.05	1313.88
27	1311.61	1313.33	A	1321.32	1320.15	1316.93	1313.70	1315.99	1317.81	1316.55	1313.91	1313.85
28	1311.43	A	A	1321.32	1320.07	1316.90	1313.60	1316.09	1317.64	1316.32	1313.74	1313.83
29	1311.31	A	1315.07	1321.40	1319.95	1316.75	1313.50	1316.19	1317.54	1316.03	1313.50	1313.86
30	1311.38	A	1314.89	1321.45	---	1316.60	1313.46	1316.30	1317.43	1315.78	1313.31	1313.90
31	1311.36	---	1314.73	1321.50	---	1316.47	---	1316.37	---	1315.60	1313.17	---
MEAN	---	---	---	---	1320.66	1318.18	1315.01	1313.91	1317.28	1316.85	1315.19	1312.45
MAX	---	---	---	---	1321.49	1319.83	1316.51	1316.37	1317.99	1317.43	1316.53	1313.90
MIN	---	---	---	---	1319.95	1316.47	1313.46	1312.95	1316.35	1315.60	1313.17	1311.07

A No gage-height record.

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR

LOCATION---Lat 18°12'04", long 66°08'26", Hydrologic Unit 21010005, 0.2 mi (0.3 km) downstream of Lago Cidra Dam on right bank, 2.1 mi (3.4 km) northwest of Plaza de Cidra.

DRAINAGE AREA---8.31 mi<sup>2</sup> (21.5 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD---November 1990 to current year.

GAGE---Water-stage recorder. Elevation of gage is 1,279 ft (390 m), from topographic map.

REMARKS---Records poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	32	4.3	84	e27	28	19	7.5	e12	28	9.2	33
2	23	32	103	74	41	35	20	7.8	17	2.8	1.9	39
3	24	32	36	63	28	29	19	7.6	e9.9	14	1.8	30
4	23	33	7.5	77	22	27	19	7.6	e6.8	20	1.8	13
5	24	21	7.6	154	19	26	18	7.5	e25	20	5.6	10
6	23	4.7	7.5	981	19	26	27	11	37	14	.60	10
7	31	9.8	7.6	119	19	26	35	24	31	11	.65	9.5
8	17	8.7	7.8	23	20	26	30	21	8.6	11	.64	10
9	17	5.6	7.9	12	20	27	28	9.3	8.3	20	.72	10
10	17	6.2	7.9	24	21	22	28	9.6	8.7	24	12	9.8
11	18	7.6	8.2	12	21	16	29	9.6	8.2	28	28	9.6
12	18	9.5	8.5	9.2	21	16	28	9.3	8.2	32	6.3	9.6
13	18	85	64	9.8	21	15	24	9.1	8.0	26	6.3	18
14	18	119	116	22	22	16	21	9.6	7.8	23	6.8	24
15	18	128	88	41	22	15	21	9.5	7.6	23	7.0	11
16	18	125	3.6	30	23	15	24	12	7.5	12	17	12
17	18	122	3.5	12	23	15	17	27	7.2	9.5	28	11
18	18	111	3.6	7.1	24	15	17	16	6.6	27	15	15
19	19	104	3.6	7.0	24	e10	28	14	28	27	4.5	22
20	20	82	5.1	7.1	25	27	27	11	36	26	4.7	11
21	19	85	4.1	12	e24	38	22	12	17	27	12	5.4
22	19	42	4.2	13	e3.6	34	10	10	11	27	15	1.9
23	12	3.0	4.4	13	e11	27	19	15	35	8.1	15	1.6
24	2.5	4.0	4.1	e21	40	27	31	e9.0	14	2.9	23	1.6
25	2.9	3.4	4.7	e2.7	32	27	31	e3.8	16	19	26	11
26	2.7	3.4	3.7	e3.3	27	26	30	e4.4	27	14	14	25
27	7.7	3.9	21	e2.6	26	26	30	e4.1	34	14	13	32
28	61	4.1	106	e2.9	26	26	16	e4.4	34	31	40	18
29	43	4.0	100	e2.7	26	26	14	e4.4	23	31	40	7.9
30	33	4.0	97	e2.6	---	26	7.2	e3.8	34	21	24	8.1
31	29	---	91	e2.6	---	21	---	e4.4	---	15	16	---
TOTAL	635.8	1234.9	941.4	1846.6	677.6	736	689.2	315.3	534.4	608.3	396.51	430.0
MEAN	20.5	41.2	30.4	59.6	23.4	23.7	23.0	10.2	17.8	19.6	12.8	14.3
MAX	61	128	116	981	41	38	35	27	37	32	40	39
MIN	2.5	3.0	3.5	2.6	3.6	10	7.2	3.8	6.6	2.8	.60	1.6
AC-FT	1260	2450	1870	3660	1340	1460	1370	625	1060	1210	786	853
CFSM	2.47	4.95	3.65	7.16	2.81	2.85	2.76	1.22	2.14	2.36	1.54	1.72
IN.	2.84	5.52	4.21	8.26	3.03	3.29	3.08	1.41	2.39	2.72	1.77	1.92

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1992, BY WATER YEAR (WY)

	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
MEAN	20.5	40.8	21.4	37.3	29.8	18.5	17.6	11.2	15.0	15.6	20.2	15.2
MAX	20.5	41.2	30.4	59.6	36.5	23.7	23.0	12.2	17.8	19.6	27.5	16.0
(WY)	1992	1992	1992	1991	1991	1992	1992	1991	1992	1991	1991	1991
MIN	20.5	40.5	12.4	14.9	23.4	13.4	12.2	10.2	12.1	11.7	12.8	14.3
(WY)	1992	1991	1991	1991	1992	1991	1991	1992	1991	1991	1992	1992

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1991 - 1992

ANNUAL TOTAL	7515.0	9046.01	
ANNUAL MEAN	20.6	24.7	
HIGHEST ANNUAL MEAN		24.7	1992
LOWEST ANNUAL MEAN		24.7	1992
HIGHEST DAILY MEAN	193	981	Jan 6 1992
LOWEST DAILY MEAN	2.5	.60	Aug 6 1992
ANNUAL SEVEN-DAY MINIMUM	3.7	1.7	Aug 3 1992
INSTANTANEOUS PEAK FLOW		1540	Jan 6 1992
INSTANTANEOUS PEAK STAGE		15.33	Jan 6 1992
INSTANTANEOUS LOW FLOW		.60	Aug 6 1992
ANNUAL RUNOFF (AC-FT)	14910	17940	
ANNUAL RUNOFF (CFSM)	2.47	2.97	
ANNUAL RUNOFF (INCHES)	33.60	40.45	
10 PERCENT EXCEEDS	37	36	
50 PERCENT EXCEEDS	13	17	
90 PERCENT EXCEEDS	8.4	4.0	

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1991 to current year.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: November 1990 to September 1992

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,670 mg/L Jan. 05, 1992; Minimum daily mean, 6 mg/L Sep. 01, 1991.

SEDIMENT LOADS: Maximum daily mean, 9,830 tons (8,920 tonnes) Jan. 05, 1992; Minimum daily mean, 0.04 ton (0.03 tonne) Aug 09-10, 1992.

EXTREMES FOR WATER YEARS 1991-92.--

Water Year	Suspended-sediment concentration (mg/L)		Suspended-sediment discharge (tons per day)	
	maximum	minimum	maximum	minimum
1991	778 (Feb. 12)	6 (Sep. 01)	338 (Feb. 05)	.19 (Sep. 10)
1992	3,670 (Jan. 06)	8 (Sep. 11)	9,830 (Jan. 06)	.04 (Aug. 09-10)

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	---	---	---	13	33	1.2	e12	56	e1.8
2	---	---	---	12	33	1.1	e13	51	e1.7
3	---	---	---	13	33	1.2	e13	51	e1.8
4	---	---	---	28	33	2.8	e13	48	e1.6
5	---	---	---	28	45	3.5	13	46	1.6
6	---	---	---	28	55	4.2	13	51	1.8
7	---	---	---	26	62	4.4	13	61	2.1
8	---	---	---	28	62	4.7	13	63	2.2
9	---	---	---	28	62	4.7	13	65	2.3
10	---	---	---	29	62	4.9	13	65	2.2
11	---	---	---	29	62	4.9	13	67	2.3
12	---	---	---	29	62	4.9	12	66	2.1
13	---	---	---	52	62	8.7	13	71	2.4
14	---	---	---	60	62	10	13	71	2.4
15	---	---	---	60	60	9.7	12	65	2.1
16	---	---	---	62	60	10	12	55	1.8
17	---	---	---	e55	60	e8.9	12	46	1.4
18	---	---	---	e55	60	e8.9	12	43	1.3
19	---	---	---	e60	60	e9.7	11	45	1.3
20	---	---	---	e60	60	e9.7	11	53	1.5
21	---	---	---	e55	60	e8.9	12	54	1.7
22	---	---	---	e60	60	e9.7	12	44	1.4
23	---	---	---	e60	60	e9.7	12	44	1.4
24	---	---	---	e60	60	e9.7	12	49	1.5
25	---	---	---	e55	60	e8.9	11	45	1.3
26	---	---	---	e55	60	e8.9	10	41	1.1
27	---	---	---	e55	60	e8.9	11	40	1.2
28	---	---	---	e35	60	e5.7	11	32	.90
29	---	---	---	e13	60	e2.1	12	25	.80
30	---	---	---	e12	60	e1.9	12	26	.79
31	---	---	---	---	---	---	20	524	42
TOTAL	---	---	---	1215	---	192.5	385	---	91.79

e Estimated

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	12	189	5.9	14	38	1.4	12	75	2.5
2	20	109	6.3	13	32	1.1	13	64	2.3
3	18	77	3.7	12	25	.82	13	54	2.0
4	16	54	2.3	13	24	.83	17	50	2.2
5	16	44	1.8	143	423	388	16	48	2.2
6	16	43	1.8	193	47	26	17	44	2.1
7	16	41	1.8	73	45	9.1	18	36	1.8
8	18	34	1.5	38	45	4.8	19	23	1.2
9	19	22	1.1	25	45	3.1	19	11	.57
10	19	12	.60	17	44	2.1	14	10	.38
11	18	8	.40	30	42	3.5	11	10	.31
12	17	9	.39	64	778	337	11	14	.41
13	15	10	.37	120	426	199	11	21	.63
14	15	13	.49	50	19	2.9	11	27	.81
15	16	18	.74	26	27	2.0	12	34	1.1
16	15	20	.84	17	42	2.1	12	38	1.2
17	15	18	.69	13	54	2.1	12	38	1.2
18	14	14	.53	14	54	2.2	13	35	1.2
19	14	13	.46	20	49	2.9	13	33	1.1
20	12	13	.40	19	47	2.6	13	34	1.1
21	12	11	.35	18	45	2.3	13	39	1.4
22	12	11	.35	16	46	2.2	14	40	1.3
23	12	13	.40	15	48	2.1	13	38	1.3
24	12	15	.47	14	48	2.0	13	32	1.1
25	13	17	.58	14	54	2.1	13	24	.81
26	13	18	.64	11	65	2.0	12	16	.50
27	13	18	.61	10	74	2.2	12	11	.34
28	13	19	.67	11	79	2.6	12	23	.73
29	14	25	.93	---	---	---	12	48	1.5
30	14	33	1.3	---	---	---	11	61	1.8
31	14	39	1.4	---	---	---	12	53	1.7
TOTAL	463	---	39.81	1023	---	1011.05	414	---	38.79

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	11	45	1.3	13	34	1.1	13	22	.69
2	11	22	.61	13	20	.70	13	18	.56
3	11	32	.91	13	20	.68	13	18	.59
4	10	49	1.3	13	21	.68	13	20	.67
5	10	61	1.6	13	29	.99	13	20	.67
6	12	61	1.8	13	29	.98	13	25	.84
7	12	53	1.7	14	26	.92	12	54	1.7
8	12	50	1.6	14	22	.78	12	70	2.1
9	12	53	1.7	13	19	.59	12	54	1.7
10	12	55	1.8	11	17	.50	12	37	1.2
11	12	57	1.8	11	15	.44	12	24	.77
12	12	57	2.0	11	14	.37	12	26	.82
13	13	53	1.8	11	13	.37	13	38	1.2
14	13	49	1.7	11	12	.34	13	46	1.6
15	13	47	1.6	11	11	.32	12	47	1.5
16	12	45	1.5	11	11	.31	12	46	1.4
17	13	41	1.4	12	10	.30	11	43	1.3
18	13	38	1.2	12	10	.33	12	31	.92
19	12	26	.85	11	10	.28	12	22	.64
20	12	21	.68	12	10	.32	12	21	.67
21	13	26	.92	11	15	.43	12	20	.61
22	13	31	1.1	12	25	.75	12	19	.60
23	13	25	.81	12	40	1.3	12	17	.55
24	13	22	.74	12	55	1.8	12	57	1.7
25	13	27	.91	15	48	2.0	12	57	1.7
26	13	33	1.1	12	35	1.1	11	81	2.4
27	13	39	1.3	11	23	.69	11	76	2.3
28	13	45	1.6	12	20	.61	11	49	1.4
29	13	49	1.6	13	25	.79	12	25	.76
30	12	48	1.5	12	29	.94	12	15	.45
31	---	---	---	12	27	.86	---	---	---
TOTAL	367	---	40.43	377	---	22.57	364	---	34.01



## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	11	14	.42	14	19	.70	13	6	.22
2	11	13	.39	14	21	.75	14	7	.26
3	11	12	.36	15	28	1.1	13	8	.27
4	11	12	.36	16	35	1.6	13	7	.27
5	11	12	.37	15	40	1.6	12	7	.26
6	11	13	.37	16	39	1.6	12	7	.23
7	11	13	.37	16	34	1.4	11	6	.20
8	11	13	.37	17	30	1.3	12	7	.21
9	11	14	.40	16	33	1.4	12	7	.21
10	11	16	.46	17	38	1.7	12	6	.19
11	11	16	.46	17	41	1.9	12	7	.22
12	11	16	.46	19	38	1.9	32	20	2.3
13	10	14	.36	30	31	2.6	23	18	1.3
14	11	12	.34	49	25	3.3	11	11	.31
15	14	21	1.0	49	37	4.6	12	11	.32
16	21	103	27	41	30	3.3	12	13	.43
17	9.4	41	.97	23	30	2.0	26	373	164
18	9.5	43	1.1	18	28	1.3	14	49	1.9
19	10	39	1.1	47	22	2.8	15	34	1.4
20	11	35	.99	45	18	2.2	15	31	1.2
21	11	30	.89	46	17	2.1	16	22	.97
22	11	26	.80	55	27	4.6	17	14	.67
23	11	22	.66	43	25	2.9	17	11	.52
24	11	19	.57	37	18	1.8	18	14	.63
25	11	17	.52	37	18	1.8	18	16	.71
26	12	15	.52	28	17	1.4	18	17	.79
27	14	15	.56	24	13	.84	19	19	.95
28	13	16	.56	20	15	.81	20	20	1.0
29	14	16	.56	29	7	.52	20	20	1.0
30	13	17	.62	26	5	.37	21	20	1.2
31	13	18	.65	14	5	.20	---	---	---
TOTAL	361.9	---	44.56	853	---	56.39	480	---	184.14

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	22	29	1.6	32	22	1.8	4.3	30	.33
2	23	28	1.7	32	22	1.8	103	28	7.6
3	24	28	1.8	32	22	1.8	36	30	2.8
4	23	27	1.6	33	22	1.9	7.5	39	.76
5	24	26	1.7	21	25	1.3	7.6	40	.82
6	23	26	1.6	4.7	20	.23	7.5	40	.80
7	31	232	82	9.8	29	.98	7.6	38	.79
8	17	31	1.4	8.7	28	.68	7.8	32	.66
9	17	25	1.1	5.6	28	.43	7.9	29	.62
10	17	26	1.1	6.2	28	.46	7.9	28	.59
11	18	27	1.2	7.6	31	.63	8.2	30	.66
12	18	29	1.3	9.5	32	.93	8.5	30	.70
13	18	30	1.3	85	38	8.2	64	49	12
14	18	30	1.4	119	40	13	116	20	6.2
15	18	30	1.4	128	42	14	88	20	4.8
16	18	30	1.4	125	45	15	3.6	20	.20
17	18	30	1.4	122	100	32	3.5	20	.19
18	18	30	1.4	111	52	15	3.6	25	.23
19	19	29	1.5	104	50	14	3.6	27	.23
20	20	27	1.4	82	44	10	5.1	26	.33
21	19	24	1.2	85	39	8.8	4.1	34	.39
22	19	25	1.3	42	37	3.9	4.2	59	.62
23	12	30	.98	3.0	38	.30	4.4	72	.88
24	2.5	37	.26	4.0	47	.53	4.1	61	.68
25	2.9	40	.32	3.4	51	.44	4.7	50	.60
26	2.7	38	.31	3.4	56	.51	3.7	50	.51
27	7.7	35	.67	3.9	59	.57	21	53	2.9
28	61	35	5.7	4.1	55	.55	106	56	16
29	43	35	3.8	4.0	44	.46	100	55	15
30	33	272	44	4.0	40	.42	97	53	14
31	29	30	2.3	---	---	---	91	51	12
TOTAL	635.8	---	170.14	1234.9	---	150.62	941.4	---	104.89

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	84	49	11	e27	102	e7.1	28	63	4.6
2	74	50	9.7	41	100	10	35	61	5.8
3	63	52	8.8	28	98	7.2	29	58	4.8
4	77	51	10	22	92	5.7	27	53	3.7
5	154	1170	976	19	84	4.3	26	53	3.7
6	981	3670	9830	19	83	4.2	26	58	4.0
7	119	1140	600	19	92	4.7	26	61	4.3
8	23	111	7.1	20	104	5.5	26	60	4.2
9	12	102	3.6	20	107	5.8	27	54	3.8
10	24	94	5.7	21	96	5.3	22	48	2.7
11	12	92	3.0	21	80	4.4	16	47	2.0
12	9.2	91	2.1	21	67	3.6	16	47	1.9
13	9.8	90	2.5	21	62	3.4	15	45	1.8
14	22	91	5.3	22	62	3.5	16	48	1.9
15	41	135	15	22	62	3.6	15	53	2.1
16	30	183	15	23	62	3.7	15	58	2.3
17	12	184	6.3	23	61	3.8	15	55	2.2
18	7.1	177	3.2	24	60	3.8	15	49	2.1
19	7.0	173	3.2	24	63	4.0	e10	45	e1.2
20	7.1	166	3.0	25	68	4.5	27	53	3.7
21	12	156	4.8	e24	70	e4.6	38	83	8.3
22	13	149	5.2	e3.6	75	e.68	34	97	8.3
23	13	146	5.1	e11	76	e2.5	27	79	5.7
24	e21	145	e8.6	40	77	8.4	27	63	4.4
25	e2.7	145	e1.1	32	71	5.8	27	49	3.4
26	e3.3	148	e1.3	27	68	4.9	26	41	2.9
27	e2.6	151	e1.1	26	64	4.5	26	39	2.7
28	e2.9	151	e1.2	26	63	4.3	26	36	2.5
29	e2.7	134	e.98	26	64	4.4	26	38	2.6
30	e2.6	113	e.79	---	---	---	26	41	2.9
31	e2.6	107	e.75	---	---	---	21	44	2.6
TOTAL	1846.6	---	11551.42	677.6	---	138.18	736	---	109.1

e Estimated

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	19	46	2.2	7.5	63	1.3	e12	52	e1.6
2	20	46	2.5	7.8	68	1.4	17	43	2.0
3	19	46	2.3	7.6	62	1.2	e9.9	32	e.86
4	19	45	2.3	7.6	49	.94	e6.8	26	e.43
5	18	45	2.2	7.5	41	.78	e25	21	e1.4
6	27	43	3.3	11	43	1.3	37	20	1.9
7	35	42	3.9	24	50	3.2	31	18	1.5
8	30	41	3.4	21	57	3.3	8.6	19	.42
9	28	43	3.2	9.3	52	1.3	8.3	20	.44
10	28	53	4.0	9.6	45	1.1	8.7	27	.66
11	29	67	5.2	9.6	40	.97	8.2	45	.94
12	28	75	5.8	9.3	39	.96	8.2	75	1.6
13	24	71	4.6	9.1	40	.99	8.0	73	1.5
14	21	60	3.3	9.6	42	1.0	7.8	63	1.3
15	21	51	2.8	9.5	46	1.2	7.6	52	.99
16	24	45	2.7	12	52	1.6	7.5	42	.87
17	17	41	1.9	27	59	4.5	7.2	33	.65
18	17	40	1.8	16	61	2.8	6.6	33	.54
19	28	40	2.8	14	70	2.9	28	32	2.3
20	27	41	2.9	11	62	1.7	36	30	2.9
21	22	42	2.4	12	46	1.6	17	31	1.4
22	10	44	1.2	10	30	.82	11	31	.97
23	19	42	2.1	15	38	1.6	35	29	2.7
24	31	40	3.3	e9.0	63	e1.5	14	29	1.1
25	31	40	3.2	e3.8	117	e1.2	16	26	1.1
26	30	30	2.4	e4.4	108	e1.3	27	23	1.7
27	30	34	2.7	e4.1	71	e.78	34	21	1.9
28	16	36	1.6	e4.4	62	e.73	34	18	1.6
29	14	44	1.7	e4.4	60	e.72	23	15	1.0
30	7.2	53	1.0	e3.8	61	e.63	34	15	1.3
31	---	---	---	e4.4	60	e.71	---	---	---
TOTAL	689.2	---	84.7	315.3	---	46.03	534.4	---	39.57

e Estimated

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	28	15	1.1	9.2	31	.57	33	32	2.8
2	2.8	15	.11	1.9	94	.45	39	38	3.9
3	14	15	.58	1.8	94	.43	30	36	3.1
4	20	14	.76	1.8	42	.20	13	28	1.1
5	20	14	.74	5.6	36	.56	10	20	.53
6	14	13	.54	.60	35	.05	10	30	.76
7	11	12	.34	.65	29	.05	9.5	47	1.1
8	11	12	.35	.64	25	.04	10	47	1.3
9	20	16	.86	.72	21	.04	10	12	.37
10	24	16	.98	12	21	.62	9.8	9	.23
11	28	16	1.1	28	22	1.7	9.6	8	.21
12	32	14	1.2	6.3	23	.38	9.6	9	.23
13	26	12	.86	6.3	23	.36	18	9	.41
14	23	12	.72	6.8	20	.36	24	9	.57
15	23	12	.72	7.0	20	.37	11	9	.25
16	12	14	.41	17	18	.84	12	10	.31
17	9.5	31	.87	28	17	1.2	11	10	.30
18	27	50	3.6	15	16	.68	15	29	1.5
19	27	59	4.1	4.5	18	.22	22	45	3.3
20	26	51	3.6	4.7	18	.22	11	37	1.3
21	27	37	2.6	12	18	.56	5.4	47	.68
22	27	26	1.8	15	18	.68	1.9	45	.22
23	8.1	19	.50	15	18	.68	1.6	45	.20
24	2.9	14	.09	23	15	.85	1.6	40	.18
25	19	11	.60	26	13	.82	11	38	1.1
26	14	8	.28	14	10	.41	25	35	2.3
27	14	7	.26	13	9	.28	32	32	2.8
28	31	4	.31	40	9	.95	18	28	1.4
29	31	5	.39	40	10	1.1	7.9	25	.50
30	21	6	.34	24	10	.68	8.1	25	.52
31	15	6	.23	16	18	.73	---	---	---
TOTAL	608.3	---	30.94	396.51	---	17.08	430.0	---	33.47
YEAR	9046.01		12476.14						

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA PR--Continued

WATER QUALITY DATA, WATER YEARS JANUARY 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
JAN 1991							
04...	1753	15	2930	119	38	46	51
13...	1730	14	405	15	62	--	75
FEB							
05...	1640	310	7700	64500	35	54	65
JUL							
16...	0750	78	1530	322	55	59	67
SEP							
17...	0859	238	7370	4730	37	52	63
OCT							
07...	1640	215	4990	2900	49	61	67
30...	1500	93	5080	1280	--	13	15

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
JAN 1991							
04...	64	75	96	99	99.5	100	100
13...	--	85	95	97	98	99	99
FEB							
05...	73	81	94	98	99.4	99.6	99.8
JUL							
16...	77	80	99	99.2	99.5	99.7	100
SEP							
17...	71	78	98	99.4	99.6	99.7	100
OCT							
07...	76	86	99	99.5	99.7	100	100
30...	--	17	25	25	99	100	100

## RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
04...	1520	12	389	13	87
07...	1800	60	330	53	99
30...	1400	276	2320	1730	99
NOV					
21...	1606	100	53	14	95
21...	1846	113	197	60	97
DEC					
13...	1215	120	118	38	84
JAN 1992					
07...	1605	26	130	9	90
28...	1722	6	156	3	92
MAY					
16...	1505	16	423	18	58
SEP					
17...	1420	10	725	20	96

## RIO DE BAYAMON BASIN

50047600 RIO DE BAYAMON NEAR AGUAS BUENAS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'39", long 66°08'39", at bridge on Highway 156, and 2.9 mi (4.7 km) west of Aguas Buenas plaza.

DRAINAGE AREA.--18.5 mi<sup>2</sup> (47.9 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958-65, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPR- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991											
15...	1430	17	297	8.2	25.5	3.0	8.5	106	16	340	410
DEC											
11...	1100	11	329	8.0	21.0	1.7	6.5	79	11	K10	330
FEB 1992											
24...	1315	49	233	7.9	22.0	25	8.3	101	10	6000	17000
APR											
20...	1120	36	218	7.1	23.0	180	7.3	86	27	54000	53000
JUN											
10...	1145	20	295	8.1	25.0	7.9	8.1	99	<10	490	K1300
AUG											
06...	0940	30	213	6.9	23.0	200	6.9	83	31	1300	130000

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 1991										
15...	110	26	11	17	0.7	2.3	110	<0.5	12	20
DEC										
11...	--	--	--	--	--	--	130	--	--	--
FEB 1992										
24...	--	--	--	--	--	--	120	--	--	--
APR										
20...	140	37	12	29	1	3.2	140	<0.5	25	32
JUN										
10...	--	--	--	--	--	--	110	--	--	--
AUG										
06...	77	18	7.8	10	0.5	3.1	59	--	17	24

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
15...	0.10	27	181	8.47	<1	--	<0.010	0.360	0.020	0.18
DEC										
11...	--	--	--	--	10	--	<0.010	0.620	0.010	0.19
FEB 1992										
24...	--	--	--	--	23	0.270	0.020	0.290	0.030	0.27
APR										
20...	0.20	15	236	22.6	229	0.730	0.030	0.760	0.050	0.65
JUN										
10...	--	--	--	--	<1	--	<0.010	0.300	0.010	0.19
AUG										
06...	<0.10	19	134	10.9	232	1.58	0.020	1.60	0.040	0.76

K = non-ideal count



## RIO DE BAYAMON BASIN

50047600 RIO DE BAYAMON NEAR AGUAS BUENAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

## RIO DE BAYAMON BASIN

50047850 RIO BAYAMON NR BAYAMON, PR

LOCATION.--Lat 18°20'08", long 66°08'13", Hydrologic Unit 21010005, on left bank, at rock quarry near Highway 174, 1.3 mi (2.1 km) south of colonia Santa Rosa and 4.7 mi (7.6 km) south of Bayamón.

DRAINAGE AREA.--41.8 mi<sup>2</sup> (108.3 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1964 to October 1970, June 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 98 ft (30 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Diversion to the Guaynabo water treatment plant, for municipal supply, made upstream from station (at Represa de San Juan). Flow is regulated by storage and release of water at Lago de Cidra (capacity 5,220 acre-ft), 10.5 mi (16.9 km) upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	47	10	8.8	e8.6	e8.5	7.6	123	19	7.4	7.0	19
2	12	35	10	8.0	e8.4	e8.5	19	87	16	7.5	7.0	18
3	9.8	19	16	7.6	e8.6	e8.5	18	19	15	7.5	7.2	18
4	7.6	20	23	7.5	e8.8	e8.4	8.6	12	14	7.6	9.2	21
5	9.2	17	14	1270	e8.4	e8.4	7.9	10	13	7.8	7.1	26
6	7.3	17	11	811	e8.4	e8.4	8.4	13	13	7.6	103	37
7	29	29	10	69	e8.4	e8.4	8.1	11	15	7.2	19	25
8	59	121	10	23	e8.4	e8.3	8.8	9.0	17	11	19	17
9	7.5	67	10	17	e8.8	e8.3	8.8	8.8	18	14	271	15
10	6.0	17	9.8	25	e8.8	e8.3	9.1	9.2	14	9.5	89	15
11	5.8	12	8.8	17	e8.8	e8.2	8.5	8.2	15	9.5	52	13
12	5.7	10	11	15	e8.2	8.2	8.8	8.1	12	9.1	46	11
13	5.6	10	9.4	15	e8.2	8.0	8.8	8.1	12	8.8	41	30
14	5.8	9.5	13	14	e8.4	7.8	8.1	7.9	12	9.6	48	16
15	6.5	9.0	e10	14	e8.0	7.8	7.5	7.4	11	11	41	11
16	5.7	13	8.8	32	e8.0	7.8	7.9	57	10	8.5	36	12
17	5.6	11	8.8	38	e8.0	8.4	7.9	22	10	8.3	32	15
18	8.3	9.4	8.8	14	e8.0	9.2	8.0	25	9.6	7.8	30	12
19	7.1	8.8	8.4	e13	e8.4	8.6	8.1	29	9.4	8.3	29	78
20	6.7	8.5	15	e12	e8.0	8.0	12	25	9.1	7.9	30	105
21	7.0	23	61	e11	e8.0	8.0	8.4	38	16	7.6	28	58
22	6.4	56	12	e11	e9.4	8.0	7.6	39	11	7.2	27	15
23	6.3	34	11	e10	e8.4	8.0	7.5	66	9.3	7.4	25	18
24	6.2	103	8.9	e10	e9.0	8.0	7.5	181	8.6	17	23	9.9
25	6.2	19	8.4	e10	e8.4	7.8	7.5	33	8.4	8.3	23	8.9
26	6.2	16	8.2	e10	e8.8	7.8	7.5	122	8.2	6.9	23	8.5
27	11	15	10	e9.8	e8.5	8.8	7.4	51	8.2	9.4	24	8.3
28	7.7	18	9.7	e9.9	e8.5	75	7.5	30	8.0	7.5	21	7.5
29	6.4	14	9.0	e9.2	e8.5	19	24	23	7.7	6.5	20	7.1
30	51	13	8.6	e9.2	---	9.1	26	20	7.4	6.0	20	7.2
31	39	---	8.6	e8.8	---	8.3	---	18	---	6.4	24	---
TOTAL	378.6	801.2	381.2	2539.8	245.1	333.8	300.8	1120.7	356.9	266.1	1245.4	662.4
MEAN	12.2	26.7	12.3	81.9	8.45	10.8	10.0	36.2	11.9	8.58	40.2	22.1
MAX	59	121	61	1270	9.4	75	26	181	19	17	271	105
MIN	5.6	8.5	8.2	7.5	8.0	7.8	7.4	7.4	7.4	6.0	7.0	7.1
AC-FT	751	1590	756	5040	486	662	597	2220	708	528	2470	1310
CFSM	.29	.64	.29	1.96	.20	.26	.24	.86	.28	.21	.96	.53
IN.	.34	.71	.34	2.26	.22	.30	.27	1.00	.32	.24	1.11	.59

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1992, BY WATER YEAR (WY)

	MEAN	37.7	50.3	49.5	40.2	23.7	20.3	21.6	48.1	21.2	21.3	46.1	44.2
MAX	129	174	263	159	75.3	52.9	72.7	131	60.8	46.6	137	146	
(WY)	1991	1970	1966	1969	1989	1990	1971	1966	1970	1970	1970	1989	
MIN	4.30	7.91	5.19	5.30	4.75	3.58	5.36	6.88	4.26	5.98	15.0	6.02	
(WY)	1969	1965	1968	1968	1965	1965	1965	1967	1967	1967	1991	1967	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1964 - 1992

ANNUAL TOTAL	7003.7	8632.0	
ANNUAL MEAN	19.2	23.6	35.2
HIGHEST ANNUAL MEAN			59.7
LOWEST ANNUAL MEAN			12.1
HIGHEST DAILY MEAN	750	Jul 16	5500
LOWEST DAILY MEAN	5.2	Sep 15	2.2
ANNUAL SEVEN-DAY MINIMUM	5.8	Oct 11	2.4
INSTANTANEOUS PEAK FLOW			28000
INSTANTANEOUS PEAK STAGE			20.20
ANNUAL RUNOFF (AC-FT)	13890	17120	25480
ANNUAL RUNOFF (CFSM)	.46	.56	.84
ANNUAL RUNOFF (INCHES)	6.23	7.68	11.43
10 PERCENT EXCEEDS	28	36	61
50 PERCENT EXCEEDS	10	9.5	13
90 PERCENT EXCEEDS	7.1	7.5	4.8

RIO DE BAYAMON BASIN

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50047990 RIO GUAYNABO NEAR BAYAMON, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°22'32", long 66°07'59", at bridge on Highway 833, 0.2 mi (0.3 km) upstream from Río de Bayamón, and 2.3 mi (3.7 km) southeast of Bayamón plaza.

DRAINAGE AREA.--73.2 mi<sup>2</sup> (189.6 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958, 1964, 1971-73, 1976, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
OCT 1991											
17...	1400	25	461	7.7	28.0	13	4.8	70	22	3500	K200
DEC											
31...	1115	28	420	7.5	22.5	19	5.0	79	13	2200	6100
FEB 1992											
25...	1200	41	438	7.6	23.5	6.4	5.4	82	16	5300	23000
APR											
23...	1250	20	506	7.1	29.0	3.2	3.3	43	37	3000	710
JUN											
25...	0815	30	470	7.3	28.0	3.2	3.1	42	11	K1100	K200
AUG											
06...	1150	75	278	7.2	27.5	22	4.0	54	15	4800	13000

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991											
17...	170	4	46	13	30	1	3.7	160	<0.5	12	40
DEC											
31...	--	--	--	--	--	--	--	150	--	--	--
FEB 1992											
25...	--	--	--	--	--	--	--	150	--	--	--
APR											
23...	160	7	44	13	30	1	4.5	170	<0.5	21	43
JUN											
25...	--	--	--	--	--	--	--	150	--	--	--
AUG											
06...	180	12	49	13	30	1	3.4	180	--	17	39

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
17...	0.10	33	274	18.8	5	0.440	0.030	0.470	0.110	0.89
DEC										
31...	--	--	--	--	35	0.450	0.040	0.490	0.090	0.31
FEB 1992										
25...	--	--	--	--	10	0.460	0.030	0.490	0.100	0.30
APR										
23...	0.20	27	280	15	17	0.350	0.050	0.400	1.80	0.70
JUN										
25...	--	--	--	--	3	0.240	0.060	0.300	2.40	0.70
AUG										
06...	0.20	30	290	23.5	18	0.510	0.100	0.610	0.230	0.37

K = non-ideal count

RIO DE BAYAMON BASIN

50047990 RIO GUAYNABO NEAR BAYAMON, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
17...	1.0	1.5	6.5	0.290	<1	<100	30	5	3	30
DEC										
31...	0.40	0.89	3.9	0.310	--	--	--	--	--	--
FEB 1992										
25...	0.40	0.89	3.9	0.270	--	--	--	--	--	--
APR										
23...	2.5	2.9	13	0.750	2	200	10	<1	4	10
JUN										
25...	3.1	3.4	15	1.30	--	--	--	--	--	--
AUG										
06...	0.60	1.2	5.4	0.310	<1	<100	50	<1	<1	<10

[illegible]

RIO DE BAYAMON BASIN

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50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'29", long 66°09'04", at bridge on Highway 890, 1.0 (1.6 km) downstream from bridge on Highway 2, and 3.2 mi (5.1 km) above mouth.

DRAINAGE AREA.--71.9 mi<sup>2</sup> (186.2 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1974 to current year.

REMARKS.--Prior to 1979 sampling site was 0.8 mile (1.3 km) downstream but was changed because of flood channel construction.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
OCT 1991											
07...	1215	22	432	7.8	30.0	10	7.2	89	19	40000	K1300
DEC											
11...	1415	24	442	7.8	27.0	3.8	5.8	72	21	K17000	K100
FEB 1992											
25...	1330	43	407	7.2	26.0	1.6	7.0	52	18	K800	23000
APR											
23...	0940	42	485	7.2	26.0	20	4.4	54	17	K20000	K1600
JUN											
25...	1050	19	451	7.6	28.0	1.2	7.5	94	22	K1100	K200
AUG											
07...	1240	48	377	7.0	28.7	46	3.7	60	27	4100	2100

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991											
07...	140	6	44	13	26	0.9	2.6	160	<0.5	18	31
DEC											
11...	--	--	--	--	--	--	--	160	--	--	--
FEB 1992											
25...	--	--	--	--	--	--	--	140	--	--	--
APR											
23...	150	7	39	13	24	0.9	3.6	170	<0.5	19	34
JUN											
25...	--	--	--	--	--	--	--	180	--	--	--
AUG											
07...	140	0	37	11	19	0.7	2.7	160	--	19	27

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
07...	0.20	28	259	15.2	17	0.310	0.060	0.370	0.380	0.32
DEC										
11...	--	--	--	--	17	0.380	0.070	0.450	0.750	0.45
FEB 1992										
25...	--	--	--	--	6	0.310	0.040	0.350	0.450	0.55
APR										
23...	0.20	24	240	27	48	0.470	0.130	0.600	1.20	0.70
JUN										
25...	--	--	--	--	18	0.260	0.030	0.290	0.060	0.34
AUG										
07...	0.10	23	224	29	79	0.600	0.020	0.620	0.090	0.41

K = non-ideal count

## RIO DE BAYAMON BASIN

50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991 07...	0.70	1.1	4.7	0.210	<1	100	<10	<1	2	<10
DEC 11...	1.2	1.7	7.3	0.270	--	--	--	--	--	--
FEB 1992 25...	1.0	1.3	6.0	0.260	--	--	--	--	--	--
APR 23...	1.9	2.5	11	0.480	2	200	30	<1	20	10
JUN 25...	0.40	0.69	3.1	0.110	--	--	--	--	--	--
AUG 07...	0.50	1.1	5.0	0.160	--	--	--	--	--	--

DATE	TOTAL RECOV- ERABLE (UG/L AS FE)	TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- TOTAL RECOV- ERABLE (UG/L AS MN)	TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	TOTAL RECOV- ERABLE (UG/L AS AG)	TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1991 07...	850	2	280	<0.10	<1	<1	<10	<0.010	1	0.06
DEC 11...	--	--	--	--	--	--	--	--	--	--
FEB 1992 25...	--	--	--	--	--	--	--	--	--	--
APR 23...	2700	3	310	<0.10	<1	<1	20	<0.010	1	0.11
JUN 25...	--	--	--	--	--	--	--	--	--	--
AUG 07...	--	--	--	--	--	--	--	--	--	--

## PESTICIDE ANALYSES

## WATER-QUALITY DATA

DATE	TIME
JUN 1992 25...	1050

RIO PUERTO NUEVO BASIN

185

50048770 RIO PIEDRAS AT EL SENORIAL, PR

LOCATION.--Lat 18°21'51", long 66°03'56", Hydrologic Unit 21010005, on right bank, in the Riberas of Señorial Housing area, 0.6 mi (1.0 km) west of Highway 176 and 2.7 mi (4.3 km) southwest of Río Piedras Plaza.

DRAINAGE AREA.--7.49 mi<sup>2</sup> (19.40 km<sup>2</sup>).

WATER-DISCHARGE RECORDS

PERIOD OF RECORDS.--March 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 98.4 ft (30.0 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.7	6.9	10	8.8	4.7	4.2	139	41	4.2	e22	e11
2	6.3	31	10	e6.0	e14	4.4	4.3	148	31	4.0	e28	e7.6
3	5.7	17	20	e4.5	e11	5.0	4.5	20	12	3.9	e17	e5.4
4	5.9	12	14	12	e7.6	5.7	4.7	13	8.5	11	e12	3.8
5	8.6	6.4	12	245	e7.2	4.4	3.1	11	6.5	6.9	e161	7.6
6	4.4	7.7	6.3	163	6.8	5.2	3.0	63	10	6.1	e27	44
7	4.1	25	4.7	16	6.7	4.0	4.6	7.9	e130	4.6	e21	9.1
8	12	47	6.7	5.6	7.2	4.7	4.9	5.8	e80	13	e7.3	5.4
9	4.7	15	5.9	19	5.5	3.9	4.9	15	e25	26	e277	4.7
10	3.7	10	4.7	73	5.9	5.0	12	8.3	e15	9.4	e281	4.7
11	3.6	5.7	4.9	13	6.1	5.6	5.8	6.8	e10	22	e31	5.4
12	3.4	e5.9	11	8.7	6.4	4.4	4.4	3.9	e8.0	9.0	e16	5.4
13	3.1	e7.7	5.9	13	5.4	5.7	2.0	3.2	e10	28	e25	6.5
14	3.4	e4.1	7.1	5.0	7.0	5.9	3.2	2.8	10	14	e289	7.4
15	4.5	7.9	4.1	5.4	6.8	4.5	1.6	2.4	9.2	13	e30	11
16	3.2	12	6.7	e25	6.7	5.6	2.0	98	6.1	6.6	e11	8.4
17	3.1	e8.0	6.7	e16	7.8	8.0	4.1	11	4.8	6.9	e4.7	10
18	76	e6.0	9.1	14	7.4	5.6	4.6	68	4.4	5.7	e4.4	7.4
19	16	e5.0	7.8	6.5	9.6	6.5	49	26	5.2	5.3	e4.1	42
20	6.4	4.0	22	7.4	7.0	5.9	7.8	13	4.9	47	e5.4	52
21	5.9	71	12	6.5	8.0	5.8	3.0	7.2	12	e18	e621	12
22	7.6	58	15	6.9	12	3.4	2.5	5.1	7.6	e12	e40	7.7
23	5.9	30	13	4.8	5.8	5.2	4.0	116	6.4	e9.3	e28	41
24	5.5	e38	12	6.7	7.8	3.4	5.4	140	5.7	e116	e12	12
25	4.2	11	5.9	12	8.2	5.0	6.8	45	5.9	e17	e11	11
26	6.4	11	6.2	11	7.4	5.2	6.5	211	5.2	e8.4	e13	12
27	4.5	9.5	6.6	9.1	6.6	4.7	5.5	66	5.4	e61	e9.3	11
28	3.7	8.6	3.7	9.7	6.6	88	3.8	32	4.7	e19	7.0	11
29	3.4	8.8	5.2	8.3	6.6	5.9	100	71	4.8	e9.8	7.4	12
30	19	7.3	9.7	7.7	---	2.6	51	83	4.3	e7.6	22	24
31	7.7	---	3.6	6.5	---	4.3	---	20	---	e117	e28	---
TOTAL	262.9	500.3	269.4	757.3	219.9	238.2	323.2	1462.4	493.6	641.7	2072.6	412.5
MEAN	8.48	16.7	8.69	24.4	7.58	7.68	10.8	47.2	16.5	20.7	66.9	13.7
MAX	76	71	22	245	14	88	100	211	130	117	621	52
MIN	3.1	4.0	3.6	4.5	5.4	2.6	1.6	2.4	4.3	3.9	4.1	3.8
AC-FT	521	992	534	1500	436	472	641	2900	979	1270	4110	818
CFSM	1.13	2.23	1.16	3.26	1.01	1.03	1.44	6.30	2.20	2.76	8.93	1.84
IN.	1.31	2.48	1.34	3.76	1.09	1.18	1.61	7.26	2.45	3.19	10.29	2.05

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992
MEAN	31.1	16.5	12.4	16.3	15.1
MAX	57.3	24.2	16.8	24.4	23.6
(WY)	1991	1989	1991	1992	1991
MIN	8.48	7.51	8.69	12.1	7.58
(WY)	1992	1991	1992	1989	1992

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1988 - 1992

ANNUAL TOTAL	4755.1	7654.0	18.6
ANNUAL MEAN	13.0	20.9	20.9
HIGHEST ANNUAL MEAN			1992
LOWEST ANNUAL MEAN			1990
HIGHEST DAILY MEAN	145 Aug 21	621 Aug 21	621 Aug 21 1992
LOWEST DAILY MEAN	2.5 Aug 11	1.6 Apr 15	1.6 Apr 15 1992
ANNUAL SEVEN-DAY MINIMUM	2.7 Aug 8	3.1 Apr 12	2.7 Aug 8 1991
INSTANTANEOUS PEAK FLOW		4250 Aug 21	4680 Aug 24 1988
INSTANTANEOUS PEAK STAGE		14.27 Aug 21	16.08 Aug 24 1988
ANNUAL RUNOFF (AC-FT)	9430	15180	13500
ANNUAL RUNOFF (CFSM)	1.74	2.79	2.49
ANNUAL RUNOFF (INCHES)	23.62	38.01	33.81
10 PERCENT EXCEEDS	25	43	40
50 PERCENT EXCEEDS	7.0	7.5	8.4
90 PERCENT EXCEEDS	3.5	4.1	4.7

## RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1988 to current year.

INSTRUMENTATION.-- USD-77 and automatic sediment sampler.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: April 1988 to September 1992.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 24,600 mg/L Sep. 18, 1989; Minimum daily mean, 2 mg/L November 18, 1988.

SEDIMENT LOADS: Maximum daily mean, e114,000tons (e103,000tonnes) Sep. 18, 1989; Minimum daily mean, 0.04 ton (0.03 tonne) May 6, 1990.

EXTREMES FOR WATER YEAR 1992.--

SEDIMENT CONCENTRATION: Maximum daily mean, 10,700 mg/L Jan. 05, 1992; Minimum daily mean, 10 mg/l several days.

SEDIMENT LOADS: Maximum daily mean, e114,000 tons (e103,000 tonnes) Jan. 05, 1992; Minimum daily mean, 0.05 ton (0.04 tonne) Apr. 15.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	11	126	8.0	9.7	102	4.3	6.9	64	1.3
2	6.3	71	1.4	31	456	87	10	98	3.2
3	5.7	49	.79	17	220	29	20	255	25
4	5.9	61	1.1	12	123	5.7	14	152	6.1
5	8.6	83	3.0	6.4	60	1.3	12	165	7.2
6	4.4	33	.37	7.7	77	2.2	6.3	58	1.1
7	4.1	29	.31	25	659	99	4.7	40	.54
8	12	158	34	47	700	158	6.7	35	.63
9	4.7	37	.50	15	188	9.4	5.9	33	.55
10	3.7	29	.29	10	110	4.1	4.7	25	.29
11	3.6	25	.22	5.7	48	.80	4.9	39	.55
12	3.4	24	.21	e5.9	54	e.84	11	151	22
13	3.1	22	.18	e7.7	76	e2.0	5.9	63	1.8
14	3.4	25	.26	e4.1	39	e.45	7.1	95	3.4
15	4.5	39	.68	7.9	71	2.4	4.1	32	.38
16	3.2	24	.21	12	126	10	6.7	87	2.4
17	3.1	24	.21	e8.0	39	e.84	6.7	61	1.2
18	76	1670	2990	e6.0	50	e.82	9.1	52	1.5
19	16	148	7.3	e5.0	40	e.54	7.8	99	3.7
20	6.4	53	.89	4.0	38	.67	22	299	51
21	5.9	51	.84	71	1400	1660	12	180	7.1
22	7.6	61	1.5	58	812	289	15	220	13
23	5.9	53	1.1	30	441	157	13	190	10
24	5.5	31	.44	e38	459	e83	12	125	6.9
25	4.2	36	.39	11	94	2.8	5.9	56	1.1
26	6.4	71	2.8	11	106	3.6	6.2	44	.95
27	4.5	38	.49	9.5	79	2.3	6.6	67	2.5
28	3.7	22	.23	8.6	67	1.5	3.7	30	.31
29	3.4	37	.47	8.8	96	2.7	5.2	42	.78
30	19	242	45	7.3	89	1.7	9.7	99	15
31	7.7	77	2.7	---	---	---	3.6	22	.23
TOTAL	262.9	---	3105.88	500.3	---	2622.96	269.4	---	191.71

e Estimated



RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

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SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	10	127	14	8.8	38	.86	4.7	30	.37
2	e6.0	67	e1.1	e14	174	e20	4.4	16	.19
3	e4.5	42	e.51	e11	131	e4.5	5.0	15	.20
4	12	126	5.9	e7.6	53	e1.1	5.7	30	.46
5	245	5850	11100	e7.2	40	e.74	4.4	40	.48
6	163	3180	3010	6.8	42	.76	5.2	41	.57
7	16	175	9.8	6.7	48	.92	4.0	36	.39
8	5.6	53	.88	7.2	46	.96	4.7	34	.42
9	19	245	62	5.5	41	.63	3.9	33	.34
10	73	1230	428	5.9	35	.59	5.0	35	.47
11	13	136	5.5	6.1	30	.47	5.6	43	.65
12	8.7	68	1.4	6.4	30	.50	4.4	40	.47
13	13	165	11	5.4	30	.45	5.7	41	.62
14	5.0	22	.30	7.0	65	1.7	5.9	61	.97
15	5.4	24	.34	6.8	68	1.7	4.5	82	.99
16	e25	21	1.4	6.7	58	1.2	5.6	103	1.6
17	e16	126	6.5	7.8	71	1.8	8.0	119	2.6
18	14	138	6.1	7.4	79	1.9	5.6	84	1.3
19	6.5	55	1.0	9.6	91	2.7	6.5	55	1.2
20	7.4	50	1.1	7.0	64	1.3	5.9	59	1.1
21	6.5	50	.83	8.0	70	1.5	5.8	51	1.1
22	6.9	64	1.6	12	138	16	3.4	24	.21
23	4.8	31	.37	5.8	44	.69	5.2	47	.78
24	6.7	40	.74	7.8	58	1.2	3.4	23	.20
25	12	129	5.5	8.2	70	1.5	5.0	56	.90
26	11	110	5.1	7.4	68	1.4	5.2	41	.78
27	9.1	83	2.4	6.6	60	1.1	4.7	39	.72
28	9.7	90	2.7	6.6	56	1.0	88	1900	4820
29	8.3	53	1.2	6.6	56	1.0	5.9	98	1.6
30	7.7	34	.76	---	---	---	2.6	73	.51
31	6.5	17	.33	---	---	---	4.3	70	.82
TOTAL	757.3	---	14688.36	219.9	---	70.17	238.2	---	4843.01

e Estimated

## RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	4.2	60	.68	139	2160	3400	41	699	385
2	4.3	47	.54	148	2460	2030	31	366	38
3	4.5	35	.42	20	186	11	12	86	2.8
4	4.7	37	.46	13	135	6.4	8.5	82	2.2
5	3.1	22	.18	11	115	4.6	6.5	60	1.2
6	3.0	22	.18	63	1090	969	10	96	7.7
7	4.6	35	.44	7.9	69	1.8	e130	2070	e727
8	4.9	61	.81	5.8	64	1.2	e80	1600	e346
9	4.9	49	.87	15	202	39	e25	711	e48
10	12	137	16	8.3	77	2.3	e15	216	e8.7
11	5.8	45	.73	6.8	57	3.2	e10	120	e3.2
12	4.4	22	.28	3.9	44	.50	e8.0	80	e1.7
13	2.0	18	.09	3.2	32	.32	e10	80	e2.2
14	3.2	13	.12	2.8	30	.27	10	125	5.3
15	1.6	10	.05	2.4	12	.08	9.2	97	6.1
16	2.0	10	.06	98	2090	2280	6.1	61	1.3
17	4.1	50	.87	11	117	5.6	4.8	32	.42
18	4.6	44	.77	68	1410	1530	4.4	26	.28
19	49	2110	1970	26	312	34	5.2	49	.78
20	7.8	97	2.1	13	145	14	4.9	34	.46
21	3.0	45	.37	7.2	51	.93	12	131	7.3
22	2.5	19	.12	5.1	42	.63	7.6	69	1.7
23	4.0	35	.60	116	2480	2080	6.4	63	1.6
24	5.4	64	1.1	140	2100	1460	5.7	29	.48
25	6.8	80	2.2	45	564	92	5.9	23	.38
26	6.5	77	2.1	211	4330	7860	5.2	21	.33
27	5.5	80	1.6	66	979	245	5.4	18	.28
28	3.8	49	.70	32	417	90	4.7	16	.22
29	100	3220	3710	71	1350	1280	4.8	16	.22
30	51	803	372	83	1420	623	4.3	12	.15
31	---	---	---	20	262	16	---	---	---
TOTAL	323.2	---	6086.44	1462.4	---	24080.83	493.6	---	1601.00

e Estimated

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	4.2	15	.18	e22	465	e28	e11	114	e3.4
2	4.0	20	.21	e28	411	e203	e7.6	84	e1.7
3	3.9	20	.22	e17	336	e15	e5.4	60	e.87
4	11	117	25	e12	225	e7.3	3.8	40	.41
5	6.9	53	1.1	e161	3000	e5200	7.6	47	.96
6	6.1	27	.43	e27	375	e27	44	764	763
7	4.6	25	.34	e21	311	e98	9.1	86	2.1
8	13	121	5.5	e7.3	76	e1.5	5.4	63	.91
9	26	368	55	e277	5190	e23100	4.7	41	.51
10	9.4	86	2.6	e281	5240	e24700	4.7	37	.46
11	22	289	34	e31	437	e37	5.4	41	.59
12	9.0	50	1.3	e16	264	e11	5.4	44	.64
13	28	440	171	e25	330	e69	6.5	50	.87
14	14	320	15	e289	5740	e25700	7.4	60	1.2
15	13	201	12	e30	360	e41	11	45	1.3
16	6.6	81	1.7	e11	167	e5.0	8.4	22	.48
17	6.9	75	2.4	e4.7	114	e1.5	10	54	1.5
18	5.7	52	.93	e4.4	94	e1.1	7.4	77	1.5
19	5.3	50	.87	e4.1	60	e.66	42	720	733
20	47	805	519	e5.4	42	e.61	52	884	627
21	e18	174	e8.5	e621	10700	e114000	12	143	6.1
22	e12	140	e4.5	e40	767	e83	7.7	82	2.0
23	e9.3	102	e2.6	e28	466	e113	41	792	814
24	e116	2270	e2800	e12	114	e3.7	12	132	5.0
25	e17	229	e10	e11	108	e3.2	11	110	3.6
26	e8.4	125	e2.8	e13	114	e4.0	12	91	2.8
27	e61	1020	e777	e9.3	105	e2.6	11	102	3.0
28	e19	208	e11	7.0	75	1.8	11	108	3.4
29	e9.8	104	e2.8	7.4	84	1.9	12	97	3.4
30	e7.6	77	e1.6	22	306	91	24	296	67
31	e117	2290	e3160	e28	420	e60	---	---	---
TOTAL	641.7	---	7629.58	2072.6	---	193610.87	412.5	---	3052.70
YEAR	7654.0		261583.51						

e Estimated

## RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
MAR 1992							
28...	1625	e88	43300	e10300	24	34	48
APR							
29...	2255	390	28700	30200	27	37	51
MAY							
16...	1200	798	45700	98500	22	33	44
23...	1753	172	8200	3810	26	34	41
AUG							
05...	0330	1390	38100	143000	25	35	43

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
MAR 1992							
28...	61	76	89	96	98	99.7	100
APR							
29...	64	75	90	97	99	99.8	100
MAY							
16...	62	68	83	92	98	99.7	100
23...	51	56	75	85	95	99.5	100
AUG							
05...	56	67	83	92	98	99.8	100

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1991					
20...	1458	5	444	6	98
MAR 1992					
29...	1830	479	4180	5410	82
30...	1124	16	247	11	94
MAY					
01...	1850	209	6310	3560	85
16...	1200	798	1870	4020	77
23...	1908	381	6730	6920	54

## RIO PUERTO NUEVO BASIN

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°22'15", long 66°03'40", at bridge on Winston Churchill Avenue in the El Señorial Housing area, 0.5 mi (0.8 km) west of Highway 176, and 2.5 mi (4.0 km) southwest of Río Piedras plaza.

DRAINAGE AREA.--8.17 mi<sup>2</sup> (20.9 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1972 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991											
07...	1200	4.1	442	8.1	28.5	8.5	7.6	97	13	56000	22000
DEC											
11...	1050	5.6	433	7.4	23.5	2.4	7.0	93	15	K12000	6300
FEB 1992											
10...	1045	5.7	380	7.5	25.0	3.7	3.6	60	16	K83000	K40000
MAY											
04...	0830	7.0	430	7.3	24.0	14	7.7	90	22	39000	23000
JUN											
08...	1115	28	415	7.2	27.0	7.0	8.2	79	32	7000	21000
AUG											
20...	1200	9.3	437	7.9	29.4	5.0	7.9	72	11	3000	3500

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
07...	160	43	13	29	1	2.9	160	<0.5	19	33
DEC										
11...	--	--	--	--	--	--	170	--	--	--
FEB 1992										
10...	--	--	--	--	--	--	130	--	--	--
MAY										
04...	140	38	12	28	1	3.4	130	<0.5	33	40
JUN										
08...	--	--	--	--	--	--	82	--	--	--
AUG										
20...	150	43	13	27	0.9	3.2	160	--	27	35

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
07...	0.10	33	269	2.95	22	0.640	0.150	0.790	0.930	0.37
DEC										
11...	--	--	--	--	1	0.790	0.180	0.970	0.740	0.56
FEB 1992										
10...	--	--	--	--	1	0.630	0.040	0.670	0.310	0.39
MAY										
04...	0.20	25	258	4.87	20	0.570	0.030	0.600	0.350	0.25
JUN										
08...	--	--	--	--	133	0.600	0.100	0.700	1.40	0.90
AUG										
20...	0.20	27	270	6.78	13	0.650	0.060	0.710	0.250	0.15

K = non-ideal count

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991 07...	1.3	2.1	9.3	0.310	2	100	<10	<1	2	<10
DEC 11...	1.3	2.3	10	0.330	--	--	--	--	--	--
FEB 1992 10...	0.70	1.4	6.1	0.220	--	--	--	--	--	--
MAY 04...	0.60	1.2	5.3	0.160	2	200	40	<1	<1	<10
JUN 08...	2.3	3.0	13	0.500	--	--	--	--	--	--
AUG 20...	0.40	1.1	4.9	0.180	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1991 07...	680	2	210	<0.10	<1	<1	<10	<0.010	2	0.06
DEC 11...	--	--	--	--	--	--	--	--	--	--
FEB 1992 10...	--	--	--	--	--	--	--	--	--	--
MAY 04...	610	<1	120	<0.10	<1	<1	<10	<0.010	2	0.05
JUN 08...	--	--	--	--	--	--	--	--	--	--
AUG 20...	--	--	--	--	--	--	--	--	--	--

## PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1992 08...	1115	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	0.06	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1992 08...	<0.010	<0.01	<0.010	<0.010	<0.010	0.05	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1992 08...	<0.01	<0.10	<0.1	<1	<0.01	0.04	<0.01	<0.01	<0.01

## RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR

LOCATION.--Lat 18°23'48", long 66°03'24", Hydrologic Unit 21010005, on left bank, at bridge on Highway 1, 0.3 mi (0.5 km) southwest of the plaza in Rio Piedras, and 0.4 mi (0.6 km) downstream from diversion for water supply.

DRAINAGE AREA.--12.5 mi<sup>2</sup> (32.4 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1958 (maximum discharge measurement only), 1959-64 (annual low-flow measurements only), July 1971 to September 1982, October 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 50 ft (15 m), from topographic map.

REMARKS.--Records fair. Low flow affected by diversions for water supply. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	17	12	9.7	8.8	5.8	9.5	202	95	7.7	33	9.6
2	12	69	13	7.7	13	6.6	8.9	149	23	7.6	40	6.6
3	9.9	18	37	7.5	12	6.2	9.2	11	15	8.3	18	6.3
4	9.7	14	14	6.3	9.2	11	10	6.9	14	14	20	6.3
5	12	9.0	14	455	8.6	7.3	9.6	5.7	13	9.0	155	8.2
6	7.0	9.3	12	168	8.1	7.4	10	76	23	8.9	16	59
7	6.5	30	8.9	14	8.6	7.9	12	12	189	8.1	20	7.8
8	8.8	41	15	9.6	8.9	7.4	19	8.8	114	41	8.3	5.7
9	5.9	11	14	26	8.6	6.8	15	14	30	56	222	5.5
10	5.4	9.6	8.8	119	8.6	7.9	21	17	19	13	154	5.4
11	5.4	7.4	9.1	13	8.7	8.5	13	14	12	28	20	8.1
12	5.5	7.2	16	13	8.8	7.6	11	8.6	15	12	15	5.6
13	5.7	9.5	8.9	17	8.9	9.0	6.8	7.9	11	33	20	6.5
14	4.8	6.9	14	11	8.9	12	6.9	7.8	18	43	274	6.2
15	7.3	7.8	7.6	10	8.8	8.3	6.0	8.3	12	29	34	6.3
16	5.8	17	20	45	7.8	8.7	6.7	122	9.2	17	19	5.8
17	4.9	9.5	7.3	13	8.7	15	7.2	19	7.8	51	12	17
18	66	9.1	7.8	11	7.5	11	13	87	6.9	13	9.7	6.6
19	13	8.1	7.1	8.4	9.2	10	73	59	7.6	11	8.5	18
20	7.9	8.3	29	9.9	6.5	9.1	13	24	8.1	96	10	62
21	6.9	201	13	8.3	6.3	9.8	9.4	46	14	21	324	16
22	6.5	76	13	7.8	20	7.2	5.7	15	9.9	18	30	6.7
23	8.7	32	13	7.6	7.3	10	6.6	167	9.7	11	38	99
24	6.9	43	9.1	8.2	7.5	7.8	7.5	127	8.8	76	10	8.7
25	6.2	9.9	8.6	13	7.2	7.9	8.4	31	8.2	18	8.5	6.3
26	9.4	12	9.6	10	7.4	8.5	8.7	354	7.9	13	8.3	5.8
27	6.5	15	13	9.2	7.8	8.2	8.8	54	7.8	123	7.1	5.0
28	6.2	8.7	9.6	12	7.0	132	9.7	31	7.2	25	6.3	4.8
29	6.2	8.9	9.7	8.8	7.0	13	561	58	6.9	12	6.5	5.4
30	26	9.9	23	8.6	---	8.0	121	74	7.3	9.3	20	85
31	12	---	11	8.7	---	9.1	---	29	---	124	28	---
TOTAL	325.0	735.1	408.1	1076.3	255.7	395.0	1027.6	1846.0	730.3	956.9	1595.2	505.2
MEAN	10.5	24.5	13.2	34.7	8.82	12.7	34.3	59.5	24.3	30.9	51.5	16.8
MAX	66	201	37	455	20	132	561	354	189	124	324	99
MIN	4.8	6.9	7.1	6.3	6.3	5.8	5.7	5.7	6.9	7.6	6.3	4.8
AC-FT	645	1460	809	2130	507	783	2040	3660	1450	1900	3160	1000
CFSM	.84	1.96	1.05	2.78	.71	1.02	2.74	4.76	1.95	2.47	4.12	1.35
IN.	.97	2.19	1.21	3.20	.76	1.18	3.06	5.49	2.17	2.85	4.75	1.50

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1992, BY WATER YEAR (WY)

	MEAN	50.0	35.5	35.1	17.4	20.2	16.1	23.8	32.6	18.9	20.6	38.2	38.0
MAX	122	133	133	34.7	98.9	42.5	64.0	121	59.7	55.6	120	112	
(WY)	1977	1978	1976	1992	1979	1972	1978	1979	1989	1989	1979	1989	
MIN	10.5	8.16	9.88	4.03	4.40	2.67	4.49	3.46	3.25	3.35	4.30	10.1	
(WY)	1992	1974	1977	1973	1977	1976	1974	1975	1974	1976	1976	1973	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1971 - 1992

ANNUAL TOTAL	7849.3	9856.4	
ANNUAL MEAN	21.5	26.9	29.1
HIGHEST ANNUAL MEAN			54.2
LOWEST ANNUAL MEAN			11.9
HIGHEST DAILY MEAN	403	561	2030
LOWEST DAILY MEAN	4.8	4.8	.26
ANNUAL SEVEN-DAY MINIMUM	5.6	5.6	.83
INSTANTANEOUS PEAK FLOW		4820	10000
INSTANTANEOUS PEAK STAGE		11.65	21.02
ANNUAL RUNOFF (AC-FT)	15570	19550	21110
ANNUAL RUNOFF (CFSM)	1.72	2.15	2.33
ANNUAL RUNOFF (INCHES)	23.36	29.33	31.67
10 PERCENT EXCEEDS	33	59	52
50 PERCENT EXCEEDS	11	9.7	12
90 PERCENT EXCEEDS	6.9	6.5	3.3



RIO PUERTO NUEVO BASIN  
50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1988 to current year.

INSTRUMENTATION.-- USD-77 and automatic sediment sampler.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1988 to September 1992.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 13,000 mg/L Sep. 18, 1989; Minimum daily mean, 4 mg/L June 4, 1990.

SEDIMENT LOADS: Maximum daily mean, 165,000 tons (150,200 tonnes) Sep. 18, 1989; Minimum daily mean, 0.09 ton (0.08 tonnes) Sep. 24, 1991.

EXTREMES FOR WATER YEARS 1992.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,080 mg/L Jan. 05, 1992; Minimum daily mean, 10 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 8,860 tons (8,040 tonnes) Aug. 21, 1992; Minimum daily mean, 0.13 tons (0.12 tonnes) Sep. 28, 1992.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	20	87	13	17	53	2.4	12	35	1.6
2	12	39	1.6	69	438	306	13	24	.90
3	9.9	38	1.1	18	64	6.1	37	187	43
4	9.7	22	.64	14	53	2.7	14	33	1.5
5	12	39	2.1	9.0	25	.66	14	22	.73
6	7.0	14	.25	9.3	19	.49	12	23	.75
7	6.5	14	.25	30	166	66	8.9	22	.52
8	8.8	22	.98	41	205	48	15	42	2.2
9	5.9	14	.22	11	23	.71	14	38	1.9
10	5.4	13	.21	9.6	15	.38	8.8	24	.64
11	5.4	11	.16	7.4	14	.29	9.1	19	.43
12	5.5	12	.17	7.2	15	.28	16	59	7.4
13	5.7	10	.15	9.5	25	.72	8.9	24	.73
14	4.8	11	.14	6.9	17	.31	14	46	3.1
15	7.3	24	1.0	7.8	16	.32	7.6	17	.34
16	5.8	11	.16	17	58	6.0	20	93	28
17	4.9	10	.13	9.5	17	.47	7.3	17	.35
18	66	459	784	9.1	16	.40	7.8	15	.29
19	13	48	3.5	8.1	17	.35	7.1	15	.26
20	7.9	18	.37	8.3	19	.42	29	143	32
21	6.9	15	.28	201	821	2280	13	47	2.0
22	6.5	16	.33	76	535	425	13	51	2.3
23	8.7	19	.43	32	147	38	13	39	1.7
24	6.9	14	.28	43	232	78	9.1	16	.41
25	6.2	12	.19	9.9	26	.75	8.6	16	.40
26	9.4	28	1.6	12	34	1.9	9.6	17	.46
27	6.5	13	.20	15	58	6.0	13	40	2.4
28	6.2	13	.20	8.7	21	.50	9.6	21	.51
29	6.2	13	.20	8.9	20	.44	9.7	22	.58
30	26	127	30	9.9	20	.50	23	95	21
31	12	44	1.4	---	---	---	11	34	1.9
TOTAL	325.0	---	845.24	735.1	---	3274.09	408.1	---	160.30

## RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	9.7	81	3.5	8.8	16	.42	5.8	35	.54
2	7.7	18	.38	13	35	4.2	6.6	40	.66
3	7.5	27	.58	12	38	2.7	6.2	33	.55
4	6.3	11	.20	9.2	17	.47	11	38	3.0
5	455	2080	7290	8.6	16	.40	7.3	14	.27
6	168	1260	1460	8.1	16	.34	7.4	11	.25
7	14	41	1.6	8.6	16	.38	7.9	13	.29
8	9.6	25	.65	8.9	16	.40	7.4	13	.25
9	26	138	37	8.6	16	.37	6.8	13	.22
10	119	862	679	8.6	16	.34	7.9	13	.28
11	13	41	1.6	8.7	16	.37	8.5	14	.33
12	13	43	2.0	8.8	16	.38	7.6	14	.26
13	17	64	4.7	8.9	16	.37	9.0	15	.37
14	11	24	.63	8.9	16	.37	12	21	.69
15	10	23	.56	8.8	15	.39	8.3	27	.63
16	45	241	178	7.8	15	.33	8.7	36	.89
17	13	53	2.2	8.7	13	.32	15	37	1.6
18	11	44	1.3	7.5	13	.28	11	26	.78
19	8.4	41	.90	9.2	16	.39	10	20	.46
20	9.9	40	.97	6.5	15	.28	9.1	16	.40
21	8.3	40	.83	6.3	13	.20	9.8	17	.44
22	7.8	38	.73	20	88	14	7.2	17	.33
23	7.6	29	.55	7.3	13	.27	10	29	.96
24	8.2	21	.42	7.5	13	.27	7.8	14	.28
25	13	35	1.4	7.2	13	.27	7.9	15	.34
26	10	19	.51	7.4	13	.28	8.5	15	.36
27	9.2	19	.46	7.8	13	.28	8.2	15	.36
28	12	19	.65	7.0	15	.28	132	982	2540
29	8.8	17	.36	7.0	23	.44	13	47	2.2
30	8.6	16	.38	---	---	---	8.0	34	.75
31	8.7	16	.40	---	---	---	9.1	27	.75
TOTAL	1076.3	---	9672.46	255.7	---	29.79	395.0	---	2559.49

RIO PUERTO NUEVO BASIN

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50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	9.5	20	.53	202	1030	2500	95	591	1140
2	8.9	20	.48	149	1000	1370	23	92	7.6
3	9.2	20	.53	11	33	1.2	15	34	1.2
4	10	20	.55	6.9	11	.21	14	32	1.2
5	9.6	18	.45	5.7	10	.15	13	31	.95
6	10	17	.41	76	604	1020	23	97	18
7	12	19	.63	12	35	1.2	189	1200	2680
8	19	67	9.0	8.8	23	.59	114	815	652
9	15	51	4.1	14	49	8.4	30	120	12
10	21	86	11	17	57	4.7	19	69	5.1
11	13	41	2.0	14	38	1.8	12	31	.97
12	11	35	1.5	8.6	19	.43	15	46	2.9
13	6.8	14	.24	7.9	16	.32	11	28	.81
14	6.9	11	.21	7.8	15	.30	18	72	11
15	6.0	11	.16	8.3	15	.34	12	40	1.9
16	6.7	12	.22	122	789	1570	9.2	20	.45
17	7.2	13	.27	19	64	3.7	7.8	15	.27
18	13	47	4.5	87	553	850	6.9	13	.22
19	73	512	721	59	373	223	7.6	16	.32
20	13	45	3.7	24	86	7.9	8.1	19	.42
21	9.4	29	1.7	46	314	267	14	39	1.9
22	5.7	10	.14	15	48	2.1	9.9	19	.49
23	6.6	10	.18	167	1290	1800	9.7	19	.48
24	7.5	10	.21	127	922	980	8.8	17	.40
25	8.4	10	.23	31	148	18	8.2	14	.31
26	8.7	10	.24	354	2050	6250	7.9	13	.29
27	8.8	10	.26	54	287	62	7.8	16	.32
28	9.7	13	.34	31	141	18	7.2	19	.37
29	561	2210	15100	58	365	254	6.9	19	.34
30	121	854	1190	74	457	170	7.3	19	.38
31	---	---	---	29	127	17	---	---	---
TOTAL	1027.6	---	17054.78	1846.0	---	17402.34	730.3	---	4542.59

## RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	7.7	19	.38	33	137	26	9.6	65	2.7
2	7.6	19	.37	40	223	86	6.6	28	.48
3	8.3	14	.31	18	60	3.6	6.3	17	.28
4	14	49	6.4	20	78	8.2	6.3	13	.21
5	9.0	18	.45	155	1260	2910	8.2	18	.50
6	8.9	16	.39	16	127	6.4	59	399	584
7	8.1	16	.32	20	119	19	7.8	19	.43
8	41	207	45	8.3	21	.54	5.7	12	.17
9	56	324	119	222	1460	4610	5.5	11	.16
10	13	37	1.2	154	937	2090	5.4	12	.17
11	28	111	13	20	85	5.8	8.1	26	.82
12	12	33	1.1	15	46	2.4	5.6	11	.17
13	33	248	78	20	104	7.7	6.5	11	.20
14	43	389	137	274	1050	3790	6.2	11	.17
15	29	137	31	34	153	20	6.3	11	.16
16	17	61	5.0	19	64	4.9	5.8	10	.16
17	51	265	62	12	31	.99	17	64	6.6
18	13	35	1.2	9.7	26	.70	6.6	18	.38
19	11	26	.72	8.5	21	.48	18	104	54
20	105	581	690	10	16	.40	62	957	1410
21	21	71	4.4	324	1580	8860	16	65	10
22	18	66	4.3	30	120	13	6.7	15	.48
23	11	30	.99	38	219	80	99	393	918
24	76	528	310	10	30	.94	8.7	21	.52
25	18	63	4.3	8.5	19	.41	6.3	11	.17
26	13	57	3.1	8.3	17	.35	5.8	10	.15
27	123	614	1240	7.1	23	.42	5.0	10	.15
28	25	135	13	6.3	20	.30	4.8	10	.13
29	12	28	1.0	6.5	11	.19	5.4	10	.14
30	9.3	21	.51	20	102	47	85	244	379
31	124	810	1520	28	127	24	---	---	---
TOTAL	965.9	---	4294.44	1595.2	---	22619.72	505.2	---	3370.50
YEAR	9865.4		85825.74						

## RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
NOV 1991							
02...	0552	548	3800	554	38	47	53
JAN 1992							
05...	1637	2560	10500	72500	48	50	56
MAR							
28...	1752	818	15800	34900	34	40	47
MAY							
01...	2037	17600	8410	17600	45	52	60
JUL							
27...	1705	1290	8430	29400	40	47	54
AUG							
05...	0330	1390	17600	66000	27	45	52

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
NOV 1991							
02...	61	73	89	96	99	99.7	100
JAN 1992							
05...	64	76	94	98	99	99.7	100
MAR							
28...	64	75	95	99	99.6	99.8	100
MAY							
01...	69	78	95	99	99.7	100	100
JUL							
27...	62	71	90	96	98	99	99.8
AUG							
05...	60	73	92	98	99	99.8	100

## RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
15...	1544	32	338	29	99
NOV					
02...	0522	336	3500	3170	94
21...	1900	344	3020	2810	95
21...	2030	409	1520	1680	97
JAN 1992					
05...	1517	476	2470	3170	89
05...	1907	1170	4040	12800	89
16...	1905	366	2670	2640	78
MAR					
28...	1642	1690	5530	25200	70
MAY					
01...	2207	1240	6880	23000	92
06...	0844	1110	5700	17100	83
JUL					
20...	1610	438	10200	12100	67
27...	1635	1010	6390	17400	79
AUG					
05...	0300	1790	10100	48700	87
09...	1650	1890	11000	56100	74
14...	1445	2760	9380	70000	89
SEP					
20...	0055	581	14800	23200	96
30...	1410	956	1720	4440	59

## 50049100 RIO PIEDRAS AT HATO REY, PR

LOCATION.--Lat 18°24'34", long 66°04'10", Hydrologic Unit 21010005, at bridge on Avenida Pifeiro at Expreso Las Américas, and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA.--15.4 mi<sup>2</sup> (39.9 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1970 to December 1987 (discharge measurements only), 1972 to December 1982 (maximum discharge only), January 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 16 ft (5 m), from topographic map.

REMARKS.--Records fair. Mean daily discharge affected by sewage discharges (approximately 2.0 ft<sup>3</sup>/s (0.06 m<sup>3</sup>/s)), 20 ft (6 m) upstream from gaging station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	23	16	13	11	6.9	18	307	146	9.8	53	27
2	19	135	16	11	14	8.4	21	218	45	9.8	62	18
3	15	43	76	13	19	8.1	15	27	25	10	23	17
4	16	34	17	11	12	86	14	19	46	17	27	18
5	21	22	17	637	10	20	12	16	50	10	247	22
6	13	25	14	320	9.6	17	11	126	54	9.9	38	112
7	11	62	9.8	43	9.4	21	13	23	304	8.6	47	35
8	19	104	32	26	8.8	10	26	16	209	102	17	31
9	12	22	29	63	8.2	9.6	37	21	58	115	241	27
10	10	16	13	315	8.7	9.9	26	39	44	13	195	26
11	10	15	12	30	9.2	10	24	22	20	47	36	39
12	10	13	20	40	9.9	8.8	16	14	23	9.9	23	22
13	12	16	13	39	10	9.5	10	13	15	45	26	24
14	12	10	19	19	11	15	11	12	29	89	368	25
15	17	8.6	9.0	17	11	11	9.5	13	19	45	45	28
16	13	19	31	72	9.9	9.8	10	167	15	20	32	30
17	12	9.9	9.1	25	11	22	12	27	13	120	17	88
18	85	12	9.4	19	8.3	14	32	111	13	12	15	25
19	20	13	9.0	16	9.8	13	93	105	13	11	15	51
20	11	17	40	16	7.4	12	16	34	13	172	17	125
21	9.9	317	18	16	8.3	13	15	143	25	33	336	42
22	9.5	221	18	14	42	9.8	8.2	20	14	30	70	20
23	12	104	20	14	7.6	16	9.4	278	12	14	92	164
24	12	122	12	13	8.1	13	10	200	12	121	28	28
25	12	17	10	25	8.5	10	11	56	12	22	23	20
26	13	22	11	19	8.1	10	9.9	616	11	15	25	17
27	9.0	26	18	14	8.0	11	10	72	11	246	25	15
28	8.7	11	14	17	7.7	205	9.5	38	11	75	23	15
29	8.7	10	14	12	7.7	42	838	74	12	28	20	16
30	34	10	23	11	---	17	224	122	9.9	17	42	178
31	14	---	15	11	---	18	---	73	---	177	91	---
TOTAL	515.8	1479.5	584.3	1911	314.2	686.8	1571.5	3022	1283.9	1654.0	2319	1305
MEAN	16.6	49.3	18.8	61.6	10.8	22.2	52.4	97.5	42.8	53.4	74.8	43.5
MAX	85	317	76	637	42	205	838	616	304	246	368	178
MIN	8.7	8.6	9.0	11	7.4	6.9	8.2	12	9.9	8.6	15	15
AC-FT	1020	2930	1160	3790	623	1360	3120	5990	2550	3280	4600	2590
CFSM	1.09	3.24	1.24	4.06	.71	1.46	3.45	6.41	2.82	3.51	4.92	2.86
IN.	1.26	3.62	1.43	4.68	.77	1.68	3.85	7.40	3.14	4.05	5.68	3.19

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

	MEAN	68.9	44.2	34.3	40.0	40.6	33.5	49.7	51.5	40.7	41.1	61.5	74.2
MAX	134	58.1	55.6	61.6	80.2	53.8	87.9	97.5	78.1	55.0	84.2	150	
(WY)	1991	1990	1991	1992	1991	1990	1988	1992	1989	1989	1988	1989	
MIN	16.6	23.9	18.8	29.9	10.8	22.2	31.6	30.8	23.0	24.8	22.6	32.6	
(WY)	1992	1991	1992	1989	1992	1992	1991	1989	1991	1990	1990	1991	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1988 - 1992

ANNUAL TOTAL	13078.3	16647.0	
ANNUAL MEAN	35.8	45.5	46.8
HIGHEST ANNUAL MEAN			53.4
LOWEST ANNUAL MEAN			41.4
HIGHEST DAILY MEAN	679	838	1830
LOWEST DAILY MEAN	8.6	6.9	6.9
ANNUAL SEVEN-DAY MINIMUM	9.4	7.8	7.8
INSTANTANEOUS PEAK FLOW		5840	8640
INSTANTANEOUS PEAK STAGE		17.73	20.77
ANNUAL RUNOFF (AC-FT)	25940	33020	33880
ANNUAL RUNOFF (CFSM)	2.36	2.99	3.08
ANNUAL RUNOFF (INCHES)	32.01	40.74	41.81
10 PERCENT EXCEEDS	69	113	104
50 PERCENT EXCEEDS	17	17	21
90 PERCENT EXCEEDS	11	9.7	12

## RIO PUERTO NUEVO BASIN

50049100 RIO PIEDRAS AT HATO REY, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./ 100 ML)	STREP-TOCOCCI (COLS. PER 100 ML)
OCT 1991											
07...	1505	11	457	8.0	31.0	1.4	6.4	84	20	49000	5200
DEC											
11...	1250	12	372	7.2	26.5	4.6	5.3	86	<10	K12000	3600
FEB 1992											
10...	1245	9.1	436	7.1	26.5	15	6.3	83	22	36000	4400
MAY											
04...	1235	21	500	7.5	29.5	13	6.0	87	24	K88000	K11000
JUN											
22...	1500	4.3	396	7.6	30.0	2.0	6.4	89	18	K110000	K18000
AUG											
12...	1205	22	450	7.7	29.0	10	5.7	85	<10	290000	35000

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
07...	170	49	12	31	1	3.5	160	<0.5	22	35
DEC										
11...	--	--	--	--	--	--	100	--	--	--
FEB 1992										
10...	--	--	--	--	--	--	160	--	--	--
MAY										
04...	160	46	12	30	1	4.1	160	<0.5	29	42
JUN										
22...	--	--	--	--	--	--	150	--	--	--
AUG										
12...	160	44	12	26	0.9	3.7	140	--	26	32

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
07...	0.10	33	282	8.21	6	0.730	0.120	0.850	0.460	0.44
DEC										
11...	--	--	--	--	1	0.600	0.090	0.690	0.300	0.50
FEB 1992										
10...	--	--	--	--	1	0.790	0.060	0.850	0.180	0.42
MAY										
04...	0.20	25	284	15.9	24	0.680	0.070	0.750	0.590	0.41
JUN										
22...	--	--	--	--	10	0.570	0.070	0.640	0.290	0.51
AUG										
12...	0.20	25	259	15.4	25	0.760	0.070	0.830	1.20	0.80

K = non-ideal count





## RIO PUERTO NUEVO BASIN

50049820 LAGUNA SAN JOSE NO. 2 AT SAN JUAN, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°25'46", long 66°02'10", 0.2 mi (0.3 km) east of Caño de Martín Peña, and 650 ft (200 m) south of Isla Guachinango.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPAR-ENCY (SECCHI DISK) (IN)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCHI, FECAL, (COLS. PER 100 ML)
NOV 1991									
01...	1005	32000	7.5	28.5	19.9	3.7	48	32000	7100
JAN 1992									
02...	0910	23000	7.1	25.0	13.8	0.4	16	48000	8300
MAR									
03...	0825	26700	7.1	25.5	37.2	1.8	21	31000	17000
MAY									
21...	1230	22700	7.2	31.0	24.0	11.0	144	310	K10
JUL									
10...	0755	21000	8.6	28.5	19.0	6.0	69	33000	--
SEP									
03...	1215	24000	8.0	20.0	23.0	1.2	20	K22000	90

DATE	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 1991									
01...	180	10	0.020	<0.050	0.710	0.59	1.3	0.460	7.8
JAN 1992									
02...	110	14	0.010	<0.050	1.70	0.0	1.1	0.300	8.1
MAR									
03...	130	12	<0.010	<0.050	2.90	0.80	3.7	0.790	6.8
MAY									
21...	64	13	<0.010	<0.050	0.030	--	<0.20	0.050	10
JUL									
10...	370	16	0.010	<0.050	0.060	0.84	0.90	0.130	13
SEP									
03...	70	43	0.020	<0.050	0.940	0.96	1.9	0.260	12

K = non-ideal count

RIO PUERTO NUEVO BASIN

205

50049920 BAHIA DE SAN JUAN NO. 5 AT SAN JUAN, PR

WATER-QUALITY RECORDS

LOCATION--Lat 18°26'37", long 66°05'11", 0.4 mi (0.6 km) west of Puente de la Constituci{n, and 0.5 mi (0.8 km) south from U.S. Naval Reservation.

DRAINAGE--Indeterminate.

PERIOD OF RECORD--Water years 1974 to present.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK (IN)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.45 UM-MF (COLS. / 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)
NOV 1991											
04...	1145	36000	7.4	28.5	29.0	2.7	42	37000	5200	120	25
JAN 1992											
02...	1010	48000	8.0	26.5	23.4	2.2	39	24000	K7300	120	29
MAR											
02...	1130	50000	7.9	26.5	20.8	3.7	52	58000	4900	130	26
MAY											
22...	1000	33000	7.5	29.0	17.0	4.4	57	K60000	20000	130	63
JUL											
10...	0850	45000	7.1	28.0	28.9	1.0	25	--	K120000	190	30
SEP											
03...	1345	50000	8.3	29.0	41.5	6.0	59	330	10	120	35

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 1991										
04...	0.100	0.030	0.130	0.630	0.17	0.80	0.93	4.1	0.190	5.7
JAN 1992										
02...	0.070	0.030	0.100	0.260	0.04	0.30	0.40	1.8	0.060	3.0
MAR										
02...	--	0.020	<0.050	0.680	0.32	1.0	--	--	0.210	6.2
MAY										
22...	0.150	0.040	0.190	0.470	0.43	0.90	1.1	4.8	0.200	6.2
JUL										
10...	0.090	0.030	0.120	1.20	0.0	1.2	1.3	5.8	0.260	7.9
SEP										
03...	--	<0.010	<0.050	0.030	--	<0.20	--	--	0.100	2.5

K = non-ideal count

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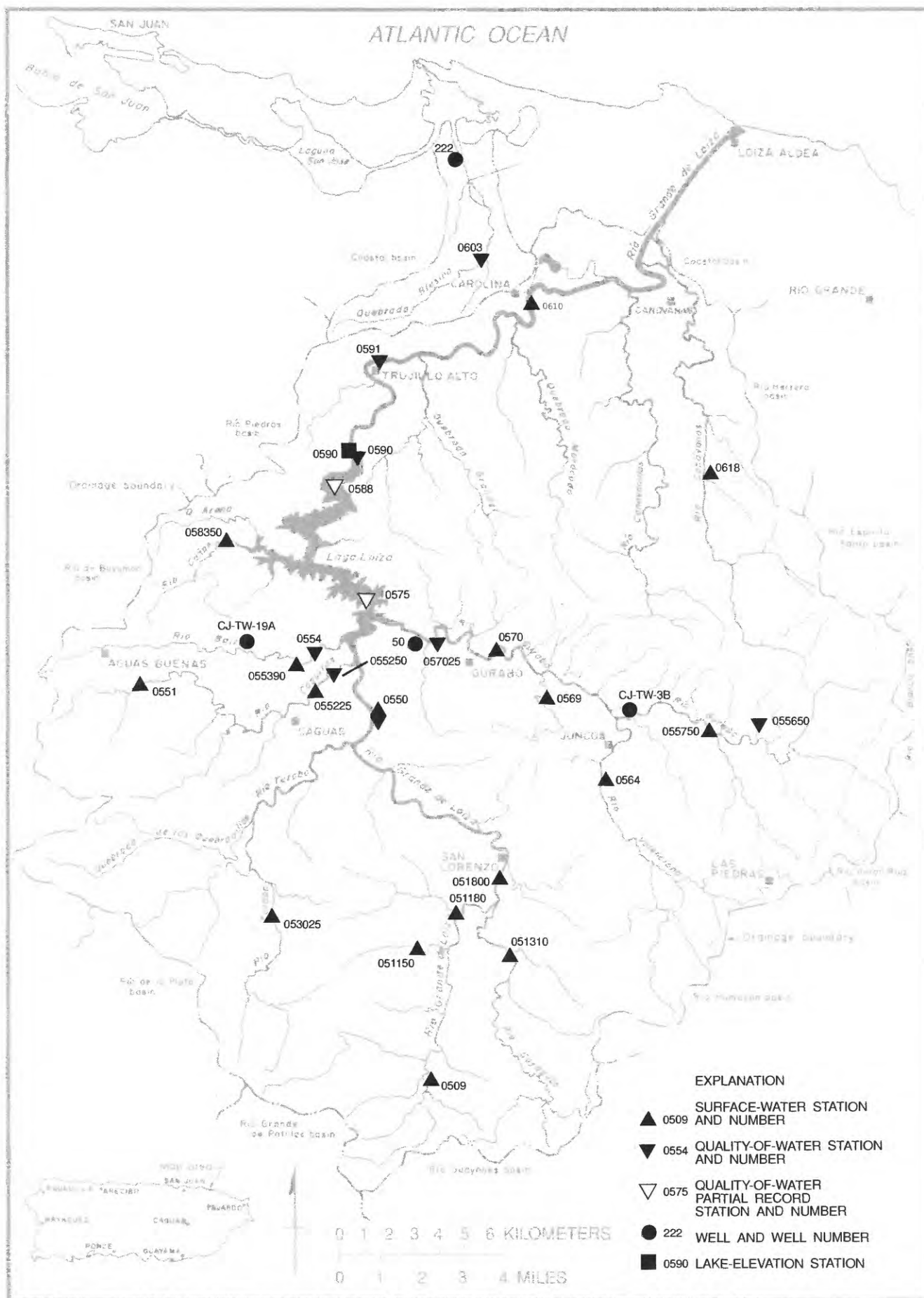


Figure 20--Río Grande de Loíza basin.

## RIO GRANDE DE LOIZA BASIN

50050300 QUEBRADA BLASINA NEAR CAROLINA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°23'27", long 65°58'28", at bridge on Highway 3, 1.4 mi (2.3 km) south of Valle Arriba Heights housing area, and 1.2 mi (1.9 km) west-southwest of Carolina plaza.

DRAINAGE AREA.--2.96 mi<sup>2</sup> (7.67 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1973 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991											
16...	0955	6.4	430	7.8	26.0	27	2.0	25	31	K68000	20000
DEC 26...	1135	4.1	443	7.5	23.5	25	5.3	37	23	43000	62000
FEB 1992											
12...	1050	4.8	460	7.2	24.0	190	6.1	42	60	K71000	4400
MAY 11...	0900	7.2	470	6.9	26.0	2.5	4.5	55	25	230000	K8500
JUN 22...	1045	8.3	395	7.0	29.0	19	7.3	48	25	25000	3900
AUG 17...	1300	6.6	385	7.4	28.5	22	6.2	36	20	59000	5600

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT 1991										
16...	160	52	8.4	29	1	3.8	140	<0.5	30	35
DEC 26...	--	--	--	--	--	--	150	--	--	--
FEB 1992										
12...	--	--	--	--	--	--	180	--	--	--
MAY 11...	150	46	9.5	32	1	3.6	140	<0.5	22	45
JUN 22...	--	--	--	--	--	--	140	--	--	--
AUG 17...	140	44	6.9	21	0.8	2.8	160	--	32	29

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
16...	0.10	23	265	4.56	49	0.750	0.080	0.830	0.280	1.1
DEC 26...	--	--	--	--	24	1.03	0.170	1.20	0.580	0.82
FEB 1992										
12...	--	--	--	--	390	1.14	0.160	1.30	0.390	1.9
MAY 11...	0.20	26	268	5.22	<1	0.720	0.210	0.930	0.740	0.86
JUN 22...	--	--	--	--	37	0.930	0.070	1.00	0.150	0.45
AUG 17...	0.40	16	224	3.55	98	0.750	0.060	0.810	0.160	0.64

K = non-ideal count

## RIO GRANDE DE LOIZA BASIN

50050300 QUEBRADA BLASINA NEAR CAROLINA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
16...	1.4	2.2	9.9	0.700	<1	<100	30	<1	4	20
DEC 26...	1.4	2.6	12	0.450	--	--	--	--	--	--
FEB 1992										
12...	2.3	3.6	16	0.720	--	--	--	--	--	--
MAY 11...	1.6	2.5	11	0.390	2	<100	60	<1	<1	<10
JUN 22...	0.60	1.6	7.1	0.160	--	--	--	--	--	--
AUG 17...	0.80	1.6	7.1	0.290	--	--	--	--	--	--

[illegible]

## RIO GRANDE DE LOIZA BASIN

50050900 RIO GRANDE DE LOIZA AT QUEBRADA ARENAS, PR

LOCATION.--Lat 18°07'10", long 65°59'22", Hydrologic Unit 21010005, at intersection of Highways 181 and 9990, 0.2 mi (0.3 km) upstream from confluence with Río Emajagua and about 7.1 mi (11.4 km) southwest of San Lorenzo.

DRAINAGE AREA.--6.00 mi<sup>2</sup> (15.54 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 640 ft (195 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	8.9	e18	e10	11	8.5	e8.0	e6.0	e80	15	12	21
2	75	9.2	e17	e9.0	10	9.5	e8.2	e15	e70	14	13	18
3	24	8.8	e18	e8.4	10	9.1	e6.0	e13	e27	13	12	27
4	18	16	e25	e8.0	11	9.1	e5.8	e7.0	e140	13	13	17
5	18	11	e18	e1000	11	8.8	e5.6	e6.4	e40	18	e150	15
6	15	11	e15	e200	24	8.8	e5.4	e20	e30	13	e50	18
7	13	237	e14	e60	14	22	e5.6	e13	e27	12	e20	16
8	12	e840	e13	43	13	e20	e6.4	e10	e29	18	e17	26
9	18	e150	e14	32	12	e12	e6.2	e8.0	e31	15	e30	56
10	13	78	e12	33	13	e8.0	e6.0	e6.6	e60	13	e20	26
11	14	34	e11	28	12	6.6	e10	e6.0	e62	33	e18	17
12	33	30	e11	24	12	6.2	e15	e7.0	e150	15	e15	15
13	15	23	e12	21	11	6.3	e11	e8.0	e100	13	14	15
14	12	19	10	19	14	6.4	e13	e9.0	e80	15	44	13
15	12	17	9.7	22	15	7.3	e10	e8.0	e45	14	20	12
16	13	15	13	18	13	5.9	e9.0	e30	e37	12	19	19
17	15	14	10	17	11	e8.0	e7.0	e13	e60	31	17	50
18	11	13	9.4	16	12	e9.0	e6.6	e12	e35	15	15	49
19	11	12	9.1	15	11	6.2	e8.0	e12	e25	18	15	75
20	10	12	16	15	11	6.2	e20	11	e22	19	16	24
21	9.4	e55	12	14	10	5.7	e13	11	e150	20	14	e19
22	9.5	e70	9.0	13	11	6.1	e8.0	11	e35	101	13	e17
23	11	e20	9.1	14	11	5.9	e7.4	e150	30	18	15	e15
24	10	e80	8.6	14	12	5.8	e6.4	e300	26	15	16	e14
25	9.4	e35	8.6	14	11	5.7	e6.0	e50	23	48	14	e13
26	9.7	e20	e8.4	14	15	6.0	e5.4	e350	21	16	16	e12
27	9.7	e45	e8.3	13	14	5.4	e5.2	e60	20	13	15	e11
28	9.7	e35	e8.4	13	12	5.2	e5.0	e30	18	11	18	e11
29	9.3	e30	e9.0	11	9.4	5.2	e5.0	e22	17	10	16	e11
30	9.0	e20	e11	11	---	5.3	e5.4	e35	16	10	16	e12
31	8.8	---	e12	11	---	e6.5	---	e22	---	9.8	22	---
TOTAL	481.5	1968.9	379.6	1740.4	356.4	246.7	239.6	1262.0	1506	600.8	705	664
MEAN	15.5	65.6	12.2	56.1	12.3	7.96	7.99	40.7	50.2	19.4	22.7	22.1
MAX	75	840	25	1000	24	22	20	350	150	101	150	75
MIN	8.8	8.8	8.3	8.0	9.4	5.2	5.0	6.0	16	9.8	12	11
AC-FT	955	3910	753	3450	707	489	475	2500	2990	1190	1400	1320
CFSM	2.59	10.9	2.04	9.36	2.05	1.33	1.33	6.78	8.37	3.23	3.79	3.69
IN.	2.99	12.21	2.35	10.79	2.21	1.53	1.49	7.82	9.34	3.72	4.37	4.12

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1992, BY WATER YEAR (WY)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	43.6	48.4	24.7	18.3	16.8	12.7	13.1	34.2	37.9	34.6	29.8	35.6			
MAX	123	122	55.2	56.1	38.0	33.1	27.1	77.5	122	82.2	90.0	94.3			
(WY)	1986	1988	1988	1992	1982	1989	1985	1985	1979	1979	1979	1979			
MIN	13.1	8.34	6.65	8.16	6.36	5.07	4.64	9.56	11.3	12.5	9.30	11.8			
(WY)	1990	1990	1990	1990	1979	1979	1979	1988	1985	1986	1991	1981			

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1978 - 1992

ANNUAL TOTAL	7245.2	10150.9	
ANNUAL MEAN	19.8	27.7	29.2
HIGHEST ANNUAL MEAN			49.6
LOWEST ANNUAL MEAN			14.5
HIGHEST DAILY MEAN	840	1000	1250
LOWEST DAILY MEAN	4.5	5.0	3.1
ANNUAL SEVEN-DAY MINIMUM	4.7	5.4	3.6
INSTANTANEOUS PEAK FLOW		4810	11700
INSTANTANEOUS PEAK STAGE		10.76	14.78
INSTANTANEOUS LOW FLOW			2.8
ANNUAL RUNOFF (AC-FT)	14370	20130	21150
ANNUAL RUNOFF (CFSM)	3.31	4.62	4.87
ANNUAL RUNOFF (INCHES)	44.92	62.94	66.11
10 PERCENT EXCEEDS	26	44	49
50 PERCENT EXCEEDS	10	13	15
90 PERCENT EXCEEDS	6.1	6.6	6.9



## RIO GRANDE DE LOIZA BASIN

50050900 RIO GRANDE DE LOIZA AT QUEBRADA ARENAS, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS AUGUST 1981 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
JAN. 28	1438	13.9	150	27.0	JUN. 22	1152	39.2	110	25.5
FEB. 18	1452	11.6	160	26.5	JUL. 08	1132	16.4	130	27.0
MAR. 26	1247	6.88	150	27.0	AUG. 12	1305	13.6	120	27.0
MAY. 20	1348	11.1	110	27.5					

## RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR

LOCATION.--Lat 18°09'40", long 65°58'58", Hydrologic Unit 21010005, 0.1 mi (0.2 km) upstream from bridge on Highway 181, and 2.8 mi (4.5 km) southwest of San Lorenzo.

DRAINAGE AREA.--3.25 mi<sup>2</sup> (8.42 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 459 ft (140 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	1.5	13	1.4	2.1	2.3	1.3	2.7	12	2.2	2.5	2.0
2	31	1.5	9.9	.95	2.1	2.5	1.1	5.3	8.5	2.0	3.2	1.6
3	11	1.6	14	.81	2.3	2.6	1.1	2.1	5.2	2.1	3.3	4.0
4	5.6	3.4	12	.72	3.9	2.4	1.1	1.8	31	7.0	4.1	2.5
5	4.2	2.7	7.9	194	3.3	2.4	1.1	1.5	8.1	10	51	1.6
6	3.1	7.8	6.3	55	7.3	2.7	1.2	2.3	4.5	2.7	14	1.9
7	2.5	41	5.4	7.5	8.8	2.5	1.5	2.8	4.8	2.3	7.2	1.8
8	2.1	114	4.8	5.9	5.3	2.3	1.3	2.0	6.1	5.7	4.3	1.6
9	1.9	60	3.9	4.1	5.5	2.1	1.1	1.7	4.5	4.0	3.8	3.9
10	1.6	39	3.2	3.6	7.7	2.0	1.0	1.6	12	2.4	7.2	1.8
11	1.9	24	3.0	2.6	5.7	1.8	1.5	1.8	7.0	4.9	4.4	1.6
12	1.4	16	3.3	2.1	4.8	1.8	1.9	2.0	32	3.4	8.7	1.6
13	1.6	11	2.5	1.8	4.3	1.7	1.4	1.6	13	2.2	5.1	1.6
14	2.0	7.5	3.2	1.7	3.8	1.7	1.4	1.6	14	1.9	4.6	1.7
15	2.0	5.8	2.1	1.5	4.1	1.7	1.4	2.0	11	2.1	4.3	1.7
16	2.6	27	2.7	1.6	4.0	1.6	1.3	20	10	3.9	3.5	11
17	3.1	16	2.1	2.2	3.6	2.0	1.2	8.0	10	20	3.1	13
18	3.0	7.7	1.7	1.5	3.4	1.9	1.2	6.2	6.6	3.1	2.5	7.7
19	2.1	5.6	1.5	1.3	3.4	1.7	1.3	6.9	4.2	2.5	2.2	28
20	1.6	4.5	5.8	1.2	3.4	1.5	1.5	19	5.6	4.0	2.0	57
21	1.4	16	3.7	1.2	3.2	1.5	1.4	14	30	4.3	1.9	26
22	1.5	33	1.8	1.1	3.1	1.4	1.6	12	12	18	1.8	11
23	1.7	15	1.5	1.1	3.1	1.4	1.5	60	7.2	3.6	1.7	8.5
24	1.5	53	1.3	1.3	4.1	1.2	1.4	42	5.1	4.5	2.2	4.8
25	1.4	30	1.2	1.4	3.6	1.2	1.4	16	3.9	12	2.1	3.1
26	1.4	15	1.1	1.5	3.1	1.2	1.5	34	3.6	5.4	2.0	2.3
27	1.4	31	1.0	1.5	2.9	1.1	1.6	13	3.4	4.7	2.2	1.9
28	1.4	41	.92	1.9	2.6	1.1	1.5	7.4	2.9	3.9	1.9	1.6
29	1.6	28	.93	1.9	2.4	1.1	1.5	6.6	2.4	3.2	1.7	1.4
30	1.6	18	.96	1.8	---	1.1	1.7	6.2	2.3	2.7	1.6	1.3
31	1.5	---	1.8	2.0	---	1.2	---	4.0	---	2.5	3.7	---
TOTAL	111.7	677.6	124.51	308.18	116.9	54.7	41.0	308.1	282.9	153.2	163.8	209.5
MEAN	3.60	22.6	4.02	9.94	4.03	1.76	1.37	9.94	9.43	4.94	5.28	6.98
MAX	31	114	14	194	8.8	2.7	1.9	60	32	20	51	57
MIN	1.4	1.5	.92	.72	2.1	1.1	1.0	1.5	2.3	1.9	1.6	1.3
AC-FT	222	1340	247	611	232	108	81	611	561	304	325	416
CFSM	1.11	6.95	1.24	3.06	1.24	.54	.42	3.06	2.90	1.52	1.63	2.15
IN.	1.28	7.76	1.43	3.53	1.34	.63	.47	3.53	3.24	1.75	1.87	2.40

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1992, BY WATER YEAR (WY)

	MEAN	13.0	19.7	7.90	4.82	4.04	4.65	2.53	9.41	6.20	5.03	6.44	7.68
MAX	47.8	36.9	30.1	9.94	8.21	20.7	4.88	31.5	21.3	13.0	20.2	14.3	
(WY)	1986	1985	1988	1992	1989	1989	1989	1985	1987	1988	1988	1985	
MIN	3.20	2.49	1.49	1.79	1.32	1.76	.90	1.51	2.40	2.02	2.21	1.36	
(WY)	1987	1990	1990	1990	1985	1992	1991	1990	1991	1986	1985	1990	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1984 - 1992

ANNUAL TOTAL	1958.48	2552.09	
ANNUAL MEAN	5.37	6.97	7.63
HIGHEST ANNUAL MEAN			12.3
LOWEST ANNUAL MEAN			2.50
HIGHEST DAILY MEAN	114	Nov 8	457
LOWEST DAILY MEAN	.38	Aug 10	.38
ANNUAL SEVEN-DAY MINIMUM	.42	Aug 7	.42
INSTANTANEOUS PEAK FLOW			7180
INSTANTANEOUS PEAK STAGE			14.30
INSTANTANEOUS LOW FLOW			.65
ANNUAL RUNOFF (AC-FT)	3880	5060	5530
ANNUAL RUNOFF (CFSM)	1.65	2.15	2.35
ANNUAL RUNOFF (INCHES)	22.42	29.21	31.89
10 PERCENT EXCEEDS	14	14	13
50 PERCENT EXCEEDS	1.8	2.5	2.5
90 PERCENT EXCEEDS	.60	1.3	1.1

## RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1985 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1984 to September 1986 and from October 1989 to September 1992.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 7,300 mg/L Oct. 06, 1985; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 4,940 tons (23,400 tonnes) May 17, 1985; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

EXTREMES FOR WATER YEARS 1992.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,150 mg/L Nov. 08, 1991; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 2,440 tons (2,210 tonnes) Jan. 05, 1992; Minimum daily mean, 0 ton several days.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	11	33	1.3	1.5	2	.00	13	12	.41
2	31	193	27	1.5	2	.00	9.9	7	.20
3	11	25	.86	1.6	2	.01	14	7	.30
4	5.6	16	.25	3.4	6	.08	12	11	.34
5	4.2	14	.16	2.7	4	.04	7.9	10	.20
6	3.1	13	.10	7.8	22	.88	6.3	7	.12
7	2.5	11	.07	41	292	52	5.4	5	.08
8	2.1	8	.05	114	1150	634	4.8	4	.05
9	1.9	8	.04	60	350	66	3.9	3	.03
10	1.6	7	.04	39	36	4.1	3.2	4	.03
11	1.9	7	.03	24	22	1.5	3.0	5	.04
12	1.4	6	.02	16	14	.61	3.3	6	.06
13	1.6	6	.03	11	9	.27	2.5	6	.04
14	2.0	6	.04	7.5	5	.10	3.2	6	.06
15	2.0	6	.04	5.8	2	.04	2.1	6	.04
16	2.6	6	.04	27	125	26	2.7	9	.07
17	3.1	6	.05	16	42	2.5	2.1	10	.05
18	3.0	6	.04	7.7	9	.19	1.7	9	.04
19	2.1	5	.03	5.6	9	.14	1.5	7	.03
20	1.6	4	.02	4.5	9	.11	5.8	4	.05
21	1.4	3	.02	16	63	12	3.7	5	.06
22	1.5	3	.02	33	184	20	1.8	5	.02
23	1.7	3	.01	15	38	1.6	1.5	6	.02
24	1.5	3	.02	53	357	70	1.3	7	.02
25	1.4	3	.02	30	114	10	1.2	10	.02
26	1.4	2	.01	15	18	.77	1.1	11	.03
27	1.4	2	.00	31	145	16	1.0	7	.02
28	1.4	2	.00	41	240	45	.92	3	.00
29	1.6	2	.00	28	62	5.2	.93	3	.01
30	1.6	2	.00	18	15	.71	.96	6	.02
31	1.5	2	.00	---	---	---	1.8	11	.06
TOTAL	111.7	---	30.31	677.6	---	969.85	124.51	---	2.52

## RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	1.4	16	.06	2.1	4	.02	2.3	2	.02
2	.95	20	.04	2.1	4	.02	2.5	1	.01
3	.81	19	.04	2.3	3	.02	2.6	1	.01
4	.72	17	.04	3.9	3	.03	2.4	2	.02
5	194	1020	2440	3.3	1	.01	2.4	3	.02
6	55	649	154	7.3	2	.04	2.7	3	.02
7	7.5	13	.28	8.8	3	.07	2.5	4	.02
8	5.9	7	.11	5.3	3	.05	2.3	3	.02
9	4.1	6	.08	5.5	3	.04	2.1	2	.02
10	3.6	6	.06	7.7	3	.06	2.0	2	.02
11	2.6	5	.04	5.7	3	.05	1.8	2	.01
12	2.1	4	.03	4.8	3	.04	1.8	2	.00
13	1.8	3	.01	4.3	3	.04	1.7	2	.01
14	1.7	2	.01	3.8	2	.03	1.7	3	.02
15	1.5	3	.02	4.1	1	.02	1.7	4	.02
16	1.6	3	.02	4.0	1	.01	1.6	5	.02
17	2.2	4	.03	3.6	1	.00	2.0	6	.03
18	1.5	3	.02	3.4	1	.00	1.9	7	.04
19	1.3	3	.02	3.4	1	.00	1.7	8	.04
20	1.2	2	.01	3.4	1	.00	1.5	7	.03
21	1.2	2	.00	3.2	1	.00	1.5	6	.02
22	1.1	2	.00	3.1	1	.01	1.4	5	.02
23	1.1	2	.00	3.1	2	.02	1.4	3	.01
24	1.3	2	.00	4.1	2	.02	1.2	3	.01
25	1.4	17	.06	3.6	3	.03	1.2	5	.02
26	1.5	4	.02	3.1	2	.02	1.2	5	.02
27	1.5	5	.02	2.9	2	.02	1.1	3	.01
28	1.9	6	.03	2.6	2	.02	1.1	2	.00
29	1.9	4	.02	2.4	2	.02	1.1	3	.01
30	1.8	2	.02	---	---	---	1.1	4	.02
31	2.0	3	.02	---	---	---	1.2	5	.02
TOTAL	308.18	---	2595.11	116.9	---	0.71	54.7	---	0.56

## RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	1.3	4	.02	2.7	7	.09	12	57	6.8
2	1.1	3	.01	5.3	13	.28	8.5	26	.78
3	1.1	2	.00	2.1	3	.03	5.2	12	.17
4	1.1	3	.01	1.8	1	.00	31	318	117
5	1.1	6	.02	1.5	2	.01	8.1	34	.75
6	1.2	7	.03	2.3	3	.02	4.5	31	.40
7	1.5	6	.03	2.8	4	.03	4.8	24	.32
8	1.3	5	.02	2.0	4	.02	6.1	15	.26
9	1.1	4	.01	1.7	3	.02	4.5	9	.11
10	1.0	3	.00	1.6	2	.01	12	41	2.5
11	1.5	3	.01	1.8	1	.00	7.0	22	.55
12	1.9	2	.01	2.0	1	.00	32	217	31
13	1.4	2	.00	1.6	3	.01	13	27	.95
14	1.4	2	.00	1.6	5	.02	14	34	1.5
15	1.4	1	.00	2.0	5	.02	11	14	.39
16	1.3	1	.00	20	554	81	10	29	1.2
17	1.2	1	.00	8.0	23	.55	10	12	.32
18	1.2	1	.00	6.2	10	.16	6.6	7	.14
19	1.3	2	.01	6.9	6	.12	4.2	5	.05
20	1.5	2	.01	19	159	19	5.6	9	.29
21	1.4	2	.00	14	31	1.4	30	169	25
22	1.6	2	.01	12	4	.14	12	9	.30
23	1.5	2	.00	60	462	258	7.2	6	.12
24	1.4	2	.00	42	278	47	5.1	6	.08
25	1.4	2	.00	16	53	2.9	3.9	11	.10
26	1.5	2	.01	34	310	50	3.6	15	.16
27	1.6	3	.02	13	45	1.9	3.4	16	.15
28	1.5	3	.02	7.4	13	.26	2.9	16	.11
29	1.5	4	.02	6.6	6	.11	2.4	14	.08
30	1.7	5	.02	6.2	17	.42	2.3	8	.05
31	---	---	---	4.0	7	.09	---	---	---
TOTAL	41.0	---	0.29	308.1	---	463.61	282.9	---	191.63

## RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	2.2	4	.03	2.5	4	.02	2.0	2	.01
2	2.0	3	.01	3.2	4	.04	1.6	2	.00
3	2.1	3	.01	3.3	4	.05	4.0	1	.01
4	7.0	28	2.3	4.1	6	.10	2.5	1	.00
5	10	42	1.9	51	461	121	1.6	1	.00
6	2.7	7	.05	14	83	3.9	1.9	1	.00
7	2.3	7	.04	7.2	27	.53	1.8	1	.00
8	5.7	15	.41	4.3	16	.20	1.6	2	.00
9	4.0	4	.06	3.8	12	.13	3.9	2	.03
10	2.4	3	.02	7.2	8	.15	1.8	2	.01
11	4.9	3	.04	4.4	6	.10	1.6	1	.00
12	3.4	4	.03	8.7	21	.73	1.6	3	.01
13	2.2	4	.02	5.1	8	.11	1.6	5	.02
14	1.9	4	.03	4.6	5	.08	1.7	5	.02
15	2.1	5	.03	4.3	3	.04	1.7	4	.02
16	3.9	5	.05	3.5	2	.02	11	62	9.2
17	20	135	19	3.1	2	.02	13	45	3.0
18	3.1	10	.08	2.5	3	.03	7.7	19	.56
19	2.5	5	.04	2.2	6	.04	28	243	32
20	4.0	5	.05	2.0	5	.03	57	329	412
21	4.3	5	.06	1.9	3	.02	26	49	3.8
22	18	79	6.6	1.8	2	.01	11	7	.19
23	3.6	15	.17	1.7	2	.00	8.5	3	.08
24	4.5	8	.09	2.2	1	.00	4.8	3	.04
25	12	30	1.7	2.1	2	.01	3.1	2	.02
26	5.4	5	.07	2.0	3	.01	2.3	2	.02
27	4.7	4	.06	2.2	4	.02	1.9	2	.01
28	3.9	4	.04	1.9	6	.03	1.6	1	.00
29	3.2	4	.04	1.7	6	.03	1.4	1	.00
30	2.7	4	.03	1.6	5	.02	1.3	1	.00
31	2.5	4	.02	3.7	3	.02	---	---	---
TOTAL	153.2	---	33.08	163.8	---	127.49	209.5	---	461.05
YEAR	2552.09		4876.21						

## RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
NOV 1991							
08...	1633	101	1230	335	58	60	70
16...	1420	120	1130	366	47	--	63
28...	1340	111	1190	401	--	52	58
JAN 1992							
05...	1020	113	851	260	54	56	59
MAY							
16...	1238	83	82500	18500	2	3	5
JUN							
04...	0940	341	3150	2900	23	29	35

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
NOV 1991							
08...	82	86	96	98	99	99.8	99.9
16...	67	69	92	97	99	99.7	99.8
28...	65	76	95	98	99	99.8	99.9
JAN 1992							
05...	--	74	96	98	99	99.6	99.9
MAY							
16...	9	17	35	64	86	97	99
JUN							
04...	43	52	69	82	93	98	99

## RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1991					
16...	1455	120	459	149	96
28...	1410	122	897	296	97
JAN 1992					
05...	0955	72	662	129	97
06...	1343	37	143	14	95
MAY					
16...	1258	118	3306	1050	91
JUN					
04...	1035	69	1600	299	95
04...	1125	70	564	106	96
AUG					
05...	1015	40	52	5.6	96
05...	1858	70	1970	372	95
SEP					
19...	1635	97	1530	401	86



RIO GRANDE DE LOIZA BASIN

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50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR

LOCATION.--Lat 18°10'24", long 65°58'38", Hydrologic Unit 21010005, on left downstream side of bridge on Highway 181, 0.2 mi (0.3 km) upstream from Río Grande de Loíza, and 1.5 mi (2.4 km) southwest of San Lorenzo.

DRAINAGE AREA.--3.74 mi<sup>2</sup> (9.69 km<sup>2</sup>).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 330 ft (100 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	1.6	3.7	2.1	1.4	1.2	1.0	3.1	3.3	1.2	1.2	e1.9
2	21	1.8	2.4	1.7	1.4	1.1	1.0	8.4	3.2	1.1	1.3	e1.6
3	15	.95	7.2	1.4	1.4	1.1	.94	2.0	1.6	1.0	1.2	3.7
4	15	1.2	8.1	1.4	1.7	1.2	1.1	e1.1	45	2.4	1.2	e2.5
5	9.2	1.5	4.9	472	1.3	1.3	1.1	e1.2	6.8	3.6	64	e1.6
6	5.1	9.4	3.1	169	2.3	1.4	.99	e1.8	3.5	1.2	13	e3.5
7	3.0	38	2.1	16	3.2	1.4	1.6	e2.2	3.0	1.0	7.5	e2.5
8	2.3	209	1.9	8.3	1.6	1.3	1.6	e1.6	3.3	1.1	5.2	e1.8
9	1.6	69	1.7	6.3	1.4	1.1	1.3	e1.4	3.0	1.3	3.4	e4.0
10	1.3	17	1.5	5.8	4.4	1.0	1.1	e1.3	4.9	1.0	9.0	2.2
11	3.7	10	1.3	3.9	2.1	1.0	1.5	e1.4	4.5	1.5	4.9	1.7
12	1.4	6.7	2.1	3.0	1.5	1.0	2.3	e1.5	41	1.3	6.2	1.6
13	1.4	3.7	2.0	2.4	1.4	1.0	1.4	e1.3	16	1.1	4.7	1.5
14	1.0	2.3	2.4	2.0	1.2	1.1	1.2	e1.2	11	.99	3.6	1.5
15	.90	1.8	1.8	2.0	1.4	1.5	1.4	e1.2	6.5	.93	3.2	1.7
16	.85	4.1	2.2	2.0	1.3	1.2	1.4	12	6.4	2.0	2.5	2.8
17	1.2	3.1	2.2	4.2	1.2	1.3	1.1	2.7	4.7	6.9	2.1	6.3
18	.79	1.5	2.1	1.9	1.2	1.5	1.3	1.4	3.2	1.8	2.1	6.7
19	.73	1.1	2.2	1.8	1.2	1.2	1.7	1.2	2.3	1.7	1.8	54
20	.60	1.1	4.4	1.8	1.3	1.5	1.1	4.7	2.3	2.0	1.7	119
21	.53	2.9	5.2	1.6	1.3	1.1	.84	2.3	10	1.8	1.6	56
22	.53	8.2	2.1	1.4	1.3	1.1	.90	1.3	3.5	6.7	1.5	20
23	2.4	2.6	1.8	1.4	1.4	1.1	1.0	57	2.3	2.4	1.4	13
24	.82	22	1.4	1.6	1.7	.91	.94	60	2.0	1.7	e2.5	10
25	.65	9.1	1.4	1.7	1.6	1.0	1.0	12	1.8	1.7	e2.0	9.1
26	.64	4.7	1.4	1.7	1.5	1.1	1.1	40	1.4	1.4	e2.2	8.9
27	.61	11	1.4	1.5	1.4	1.1	1.1	8.0	1.6	1.4	e2.0	8.6
28	.57	10	1.3	1.5	1.4	1.0	1.1	4.4	1.6	1.4	e1.9	7.9
29	2.8	8.9	1.3	1.6	1.3	1.0	.90	2.5	1.3	1.3	e1.8	7.2
30	7.7	5.8	1.3	1.5	---	.94	1.4	2.2	1.2	1.2	e1.7	7.0
31	1.9	---	2.9	1.5	---	.97	---	1.6	---	1.2	e3.5	---
TOTAL	119.22	470.05	80.8	726.0	46.8	35.72	36.41	244.0	202.2	57.32	161.9	369.8
MEAN	3.85	15.7	2.61	23.4	1.61	1.15	1.21	7.87	6.74	1.85	5.22	12.3
MAX	21	209	8.1	472	4.4	1.5	2.3	60	45	6.9	64	119
MIN	.53	.95	1.3	1.4	1.2	.91	.84	1.1	1.2	.93	1.2	1.5
AC-FT	236	932	160	1440	93	71	72	484	401	114	321	733
CFSM	1.03	4.19	.70	6.26	.43	.31	.32	2.10	1.80	.49	1.40	3.30
IN.	1.19	4.68	.80	7.22	.47	.36	.36	2.43	2.01	.57	1.61	3.68

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1992, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	11.1	15.1	5.94	5.37	3.57	3.74	2.80	8.58	6.56
MAX	36.2	33.4	22.8	23.4	10.3	17.4	6.60	35.8	15.0
(WY)	1986	1988	1988	1992	1984	1989	1985	1985	1984
MIN	2.31	2.72	1.17	1.16	1.23	1.15	.88	1.53	1.78
(WY)	1987	1990	1990	1990	1990	1992	1984	1990	1991

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1984 - 1992

ANNUAL TOTAL	1561.29	2550.22	
ANNUAL MEAN	4.28	6.97	
HIGHEST ANNUAL MEAN			10.4 1988
LOWEST ANNUAL MEAN			3.19 1990
HIGHEST DAILY MEAN	209 Nov 8	472 Jan 5	472 Nov 27 1987
LOWEST DAILY MEAN	.33 Jul 13	.53 Oct 21	.29 Sep 12 1990
ANNUAL SEVEN-DAY MINIMUM	.49 Jun 14	.75 Oct 16	.41 May 19 1990
INSTANTANEOUS PEAK FLOW		5240 Jan 5	9320 May 17 1985
INSTANTANEOUS PEAK STAGE		15.22 Jan 5	17.10 May 17 1985
INSTANTANEOUS LOW FLOW		.48 Oct 29	.26 May 30 1990
ANNUAL RUNOFF (AC-FT)	3100	5060	5010
ANNUAL RUNOFF (CFSM)	1.14	1.86	1.85
ANNUAL RUNOFF (INCHES)	15.53	25.37	25.10
10 PERCENT EXCEEDS	8.0	9.1	10
50 PERCENT EXCEEDS	1.4	1.7	2.0
90 PERCENT EXCEEDS	.65	1.0	.99

## RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1984 to 1986 and water years 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1984 to September 1986 and from October 1989 to September 1992.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 7,300 mg/L Oct. 06, 1985; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 11,100 tons (10,100 tonnes) Jan. 05, 1992; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

EXTREMES FOR WATER YEARS 1992.--

SEDIMENT CONCENTRATION: Maximum daily mean, 472 mg/L Jan. 05, 1992; Minimum daily mean, 0.53 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 11,100 tons (10,100 tonnes) Jan. 05 1992; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

## DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	14	14	2.3	1.6	1.6	.19	3.7	3.7	.08
2	21	21	6.3	1.8	1.8	.21	2.4	2.4	.03
3	15	15	3.0	.95	.95	.09	7.2	7.2	1.1
4	15	15	3.9	1.2	1.2	.11	8.1	8.1	.61
5	9.2	9.2	1.1	1.5	1.5	.15	4.9	4.9	.11
6	5.1	5.1	.30	9.4	9.4	2.8	3.1	3.1	.05
7	3.0	3.0	.09	38	38	35	2.1	2.1	.03
8	2.3	2.3	.06	209	209	1660	1.9	1.9	.02
9	1.6	1.6	.02	69	69	161	1.7	1.7	.02
10	1.3	1.3	.02	17	17	3.9	1.5	1.5	.02
11	3.7	3.7	.42	10	10	.30	1.3	1.3	.01
12	1.4	1.4	.01	6.7	6.7	.12	2.1	2.1	.02
13	1.4	1.4	.01	3.7	3.7	.05	2.0	2.0	.02
14	1.0	1.0	.02	2.3	2.3	.03	2.4	2.4	.01
15	.90	.90	.02	1.8	1.8	.02	1.8	1.8	.02
16	.85	.85	.03	4.1	4.1	.40	2.2	2.2	.01
17	1.2	1.2	.02	3.1	3.1	.19	2.2	2.2	.02
18	.79	.79	.02	1.5	1.5	.02	2.1	2.1	.02
19	.73	.73	.02	1.1	1.1	.02	2.2	2.2	.02
20	.60	.60	.02	1.1	1.1	.02	4.4	4.4	.30
21	.53	.53	.02	2.9	2.9	.34	5.2	5.2	.16
22	.53	.53	.02	8.2	8.2	1.0	2.1	2.1	.02
23	2.4	2.4	.27	2.6	2.6	.08	1.8	1.8	.01
24	.82	.82	.00	22	22	24	1.4	1.4	.00
25	.65	.65	.00	9.1	9.1	1.1	1.4	1.4	.00
26	.64	.64	.00	4.7	4.7	.17	1.4	1.4	.00
27	.61	.61	.00	11	11	2.0	1.4	1.4	.00
28	.57	.57	.00	10	10	1.7	1.3	1.3	.00
29	2.8	2.8	.50	8.9	8.9	.81	1.3	1.3	.00
30	7.7	7.7	3.2	5.8	5.8	.20	1.3	1.3	.01
31	1.9	1.9	21	---	---	---	2.9	2.9	.13
TOTAL	119.22	---	42.69	470.05	---	1896.02	80.8	---	2.85

## RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
JANUARY			FEBRUARY			MARCH			
1	2.1	2.1	.06	1.4	1.4	.01	1.2	1.2	.01
2	1.7	1.7	.02	1.4	1.4	.00	1.1	1.1	.02
3	1.4	1.4	.02	1.4	1.4	.00	1.1	1.1	.02
4	1.4	1.4	.02	1.7	1.7	.01	1.2	1.2	.02
5	472	472	11100	1.3	1.3	.00	1.3	1.3	.01
6	169	169	819	2.3	2.3	.00	1.4	1.4	.00
7	16	16	1.8	3.2	3.2	.00	1.4	1.4	.00
8	8.3	8.3	.18	1.6	1.6	.00	1.3	1.3	.00
9	6.3	6.3	.08	1.4	1.4	.00	1.1	1.1	.00
10	5.8	5.8	.08	4.4	4.4	.26	1.0	1.0	.00
11	3.9	3.9	.05	2.1	2.1	.07	1.0	1.0	.00
12	3.0	3.0	.02	1.5	1.5	.01	1.0	1.0	.00
13	2.4	2.4	.01	1.4	1.4	.00	1.0	1.0	.00
14	2.0	2.0	.02	1.2	1.2	.00	1.1	1.1	.00
15	2.0	2.0	.02	1.4	1.4	.00	1.5	1.5	.00
16	2.0	2.0	.03	1.3	1.3	.01	1.2	1.2	.00
17	4.2	4.2	.19	1.2	1.2	.02	1.3	1.3	.00
18	1.9	1.9	.03	1.2	1.2	.01	1.5	1.5	.00
19	1.8	1.8	.02	1.2	1.2	.00	1.2	1.2	.00
20	1.8	1.8	.02	1.3	1.3	.01	1.5	1.5	.04
21	1.6	1.6	.01	1.3	1.3	.01	1.1	1.1	.02
22	1.4	1.4	.00	1.3	1.3	.02	1.1	1.1	.01
23	1.4	1.4	.00	1.4	1.4	.01	1.1	1.1	.00
24	1.6	1.6	.00	1.7	1.7	.02	.91	.91	.00
25	1.7	1.7	.00	1.6	1.6	.02	1.0	1.0	.00
26	1.7	1.7	.00	1.5	1.5	.02	1.1	1.1	.00
27	1.5	1.5	.00	1.4	1.4	.01	1.1	1.1	.00
28	1.5	1.5	.01	1.4	1.4	.00	1.0	1.0	.00
29	1.6	1.6	.02	1.3	1.3	.00	1.0	1.0	.01
30	1.5	1.5	.02	---	---	---	.94	.94	.00
31	1.5	1.5	.02	---	---	---	.97	.97	.01
TOTAL	726.0	---	11921.75	46.8	---	0.52	35.72	---	0.17

## RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
APRIL			MAY			JUNE			
1	1.0	1.0	.00	3.1	3.1	.39	3.3	3.3	.25
2	1.0	1.0	.00	8.4	8.4	1.6	3.2	3.2	.35
3	.94	.94	.00	2.0	2.0	.04	1.6	1.6	.06
4	1.1	1.1	.00	e1.1	1.1	e.02	45	45	250
5	1.1	1.1	.00	e1.2	1.2	e.02	6.8	6.8	.41
6	.99	.99	.00	e1.8	1.8	e.02	3.5	3.5	.14
7	1.6	1.6	.00	e2.2	2.2	e.02	3.0	3.0	.10
8	1.6	1.6	.00	e1.6	1.6	e.01	3.3	3.3	.07
9	1.3	1.3	.00	e1.4	1.4	e.02	3.0	3.0	.05
10	1.1	1.1	.01	e1.3	1.3	e.02	4.9	4.9	.32
11	1.5	1.5	.00	e1.4	1.4	e.02	4.5	4.5	.15
12	2.3	2.3	.02	e1.5	1.5	e.02	41	41	130
13	1.4	1.4	.02	e1.3	1.3	e.02	16	16	3.6
14	1.2	1.2	.01	e1.2	1.2	e.02	11	11	1.4
15	1.4	1.4	.03	e1.2	1.2	e.02	6.5	6.5	.19
16	1.4	1.4	.03	12	12	17	6.4	6.4	.41
17	1.1	1.1	.02	2.7	2.7	.11	4.7	4.7	.14
18	1.3	1.3	.03	1.4	1.4	.00	3.2	3.2	.06
19	1.7	1.7	.04	1.2	1.2	.01	2.3	2.3	.03
20	1.1	1.1	.02	4.7	4.7	.60	2.3	2.3	.05
21	.84	.84	.01	2.3	2.3	.06	10	10	1.9
22	.90	.90	.01	1.3	1.3	.02	3.5	3.5	.16
23	1.0	1.0	.01	57	57	540	2.3	2.3	.10
24	.94	.94	.01	60	60	73	2.0	2.0	.08
25	1.0	1.0	.01	12	12	3.0	1.8	1.8	.05
26	1.1	1.1	.01	40	40	190	1.4	1.4	.04
27	1.1	1.1	.00	8.0	8.0	.22	1.6	1.6	.03
28	1.1	1.1	.00	4.4	4.4	.08	1.6	1.6	.02
29	.90	.90	.00	2.5	2.5	.04	1.3	1.3	.02
30	1.4	1.4	.00	2.2	2.2	.04	1.2	1.2	.02
31	---	---	---	1.6	1.6	.03	---	---	---
TOTAL	36.41	---	0.29	244.0	---	826.47	202.2	---	390.20

e Estimated



## RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
NOV 1991							
08...	1615	248	2120	1420	41	49	55
MAY 1992							
23...	2027	375	30400	30800	24	30	34
JUN							
04...	0941	417	5500	6190	27	34	41
12...	0426	115	4040	1250	32	37	42

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
NOV 1991							
08...	72	80	98	99	99.7	99.8	100
MAY 1992							
23...	48	60	82	94	99	99.7	100
JUN							
04...	52	62	78	82	87	91	96
12...	52	63	88	97	99	99.8	100

## RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEO (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEO (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1991					
06...	1011	0.83	38	0.1	83
JAN 1992					
06...	1325	86	134	31	97
MAY					
23...	2012	261	2290	1610	91
24...	0047	255	1130	781	65
JUN					
04...	0921	117	3840	1210	55
04...	1055	210	1780	1010	96
04...	1221	95	459	117	98
12...	0421	108	11000	3200	90
SEP					
18...	1025	11	603	18	97

## RIO GRANDE DE LOIZA BASIN

50051310 RIO CAYAGUAS AT CERRO GORDO, PR

LOCATION.--Lat 18°09'13", long 65°57'20", Hydrologic Unit 21010005, at downstream side of bridge on Highway 912, at Barrio Cerro Gordo, 2.8 mi (4.5 km) south of San Lorenzo.

DRAINAGE AREA.--10.2 mi<sup>2</sup> (26.4 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 490 ft (150 m), from topographic map. Prior to Oct. 1, 1983, at site 2,000 ft (610 m) downstream at different datum.

REMARKS.--Records poor. Sand removal at a commercial level is practiced at times during the year. This takes place about one hundred feet downstream from the low water control. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	11	15	11	9.9	11	11	14	109	25	40	43
2	35	12	16	10	10	11	12	30	73	25	38	40
3	19	12	16	9.5	10	11	10	13	41	25	39	52
4	16	14	17	9.3	11	12	9.6	11	195	32	42	35
5	17	16	15	777	10	11	9.2	10	112	46	284	31
6	16	13	14	264	14	12	9.0	30	89	31	98	45
7	14	60	13	26	12	16	9.4	22	80	32	39	43
8	14	970	13	14	10	16	9.0	13	81	46	37	38
9	15	120	13	11	11	11	8.7	11	79	47	54	159
10	14	43	13	11	12	10	8.5	10	105	43	108	37
11	13	21	12	10	11	10	9.4	10	83	83	52	26
12	15	19	13	9.8	10	10	15	10	177	51	60	25
13	15	17	12	9.8	10	10	13	9.5	118	42	40	26
14	14	16	12	9.3	11	11	11	9.9	110	41	56	26
15	14	15	12	9.7	12	11	12	12	79	53	53	28
16	13	15	14	10	11	10	11	170	82	42	41	56
17	16	14	12	9.4	10	14	11	30	110	96	42	39
18	14	14	12	9.5	10	14	11	21	94	72	32	42
19	13	13	12	9.4	11	11	22	18	78	84	28	131
20	12	13	13	9.5	11	11	33	20	85	99	30	694
21	12	15	13	9.3	11	12	15	17	184	68	25	240
22	12	38	11	9.5	11	11	13	16	41	186	25	44
23	12	18	11	9.6	11	11	11	330	38	54	27	32
24	12	49	11	9.8	12	11	11	165	27	44	35	25
25	11	22	10	9.8	11	11	11	72	27	88	28	20
26	11	16	10	9.9	12	11	10	831	26	52	32	16
27	11	23	10	9.5	12	11	10	54	29	46	39	15
28	11	20	10	9.9	12	10	10	33	27	40	40	15
29	11	19	10	10	11	10	10	28	26	38	44	16
30	11	16	11	9.8	---	9.9	11	27	26	36	39	17
31	11	---	12	9.9	---	9.9	---	25	---	36	51	---
TOTAL	445	1664	388	1346.2	319.9	350.8	356.8	2072.4	2431	1703	1598	2056
MEAN	14.4	55.5	12.5	43.4	11.0	11.3	11.9	66.9	81.0	54.9	51.5	68.5
MAX	35	970	17	777	14	16	33	831	195	186	284	694
MIN	11	11	10	9.3	9.9	9.9	8.5	9.5	26	25	25	15
AC-FT	883	3300	770	2670	635	696	708	4110	4820	3380	3170	4080
CFSM	1.41	5.44	1.23	4.26	1.08	1.11	1.17	6.55	7.94	5.39	5.05	6.72
IN.	1.62	6.07	1.42	4.91	1.17	1.28	1.30	7.56	8.87	6.21	5.83	7.50

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1992, BY WATER YEAR (WY)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	66.0	75.2	46.9	28.7	26.7	21.9	20.9	50.3	47.9	42.2	47.6	55.4				
MAX	176	196	163	46.4	67.5	45.4	46.0	155	140	118	202	216				
(WY)	1986	1988	1988	1988	1984	1989	1985	1985	1979	1979	1979	1979				
MIN	14.4	19.2	12.5	14.6	11.0	11.3	10.7	9.68	14.4	16.0	14.5	16.9				
(WY)	1992	1982	1992	1990	1992	1992	1980	1990	1991	1990	1991	1980				

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1977 - 1992

	1991	1992	1977-1992
ANNUAL TOTAL	7044.7	14731.1	
ANNUAL MEAN	19.3	40.2	44.2
HIGHEST ANNUAL MEAN			89.7
LOWEST ANNUAL MEAN			18.6
HIGHEST DAILY MEAN	970	Nov 8	2900
LOWEST DAILY MEAN	9.0	May 31	7.1
ANNUAL SEVEN-DAY MINIMUM	9.4	Jun 14	8.6
INSTANTANEOUS PEAK FLOW			13200
INSTANTANEOUS PEAK STAGE			19.12
INSTANTANEOUS LOW FLOW			May 26
ANNUAL RUNOFF (AC-FT)	13970	29220	32030
ANNUAL RUNOFF (CFSM)	1.89	3.95	4.33
ANNUAL RUNOFF (INCHES)	25.69	53.73	58.90
10 PERCENT EXCEEDS	22	80	67
50 PERCENT EXCEEDS	14	15	24
90 PERCENT EXCEEDS	10	10	12



50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR

LOCATION.--Lat 18°11'09", long 65°57'42", Hydrologic Unit 21010005, at upstream side of bridge on Highway 183 by-pass, 0.4 mi (0.6 km) south from Plaza de San Lorenzo, 1.4 mi (2.2 km), southwest from Escuela Rafael Colón García and 2.0 mi (3.2 km) northwest from Escuela Segunda Unidad de Carlos Zayas.

DRAINAGE AREA.--25.0 mi<sup>2</sup> (64.8 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 262 ft (80 m), from topographic map.

REMARKS.--Records poor. Water purification plant located about 0.2 mi (0.3 km) upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	e66	124	71	24	12	e19	9.1	e300	92	100	75
2	221	e46	127	55	22	11	e16	50	e270	80	100	64
3	162	e54	127	51	22	e13	e14	12	e100	78	109	103
4	121	e49	151	48	26	e20	13	7.8	e540	99	104	71
5	118	e43	114	3380	22	e30	11	6.9	e150	127	592	61
6	102	e66	102	1080	41	e20	10	43	e140	81	273	76
7	79	e76	e94	168	38	e22	14	36	e250	76	192	73
8	73	e2600	e88	117	26	e18	12	16	e490	92	157	59
9	76	402	e90	83	23	e17	10	12	e520	95	160	177
10	72	248	e84	85	33	e15	10	11	e470	83	241	72
11	68	173	e76	66	25	e14	13	12	e660	134	161	60
12	99	150	e80	57	20	e14	47	12	e500	98	168	54
13	78	127	e76	53	18	e15	35	8.4	e460	80	130	49
14	66	115	e70	47	21	e20	30	8.7	e400	79	157	47
15	68	103	e72	48	25	e14	26	28	e360	90	142	48
16	63	116	e76	46	21	e23	14	e600	377	86	116	e75
17	79	103	e74	48	17	e21	12	e120	385	179	103	e420
18	63	88	e62	40	16	e28	11	e60	289	111	92	e110
19	54	82	e60	38	16	e18	22	e45	179	132	85	e800
20	43	79	e74	37	14	e20	65	e80	173	159	85	e2500
21	43	94	e130	35	14	e21	23	e56	466	123	79	e1400
22	40	240	e68	34	16	e17	14	e38	210	270	76	e230
23	e66	142	e67	31	16	e16	11	e800	179	134	74	180
24	e50	299	61	33	17	e14	9.2	e1200	150	116	85	153
25	e44	196	59	32	16	e18	8.3	e180	133	192	73	137
26	e40	135	54	34	16	e17	7.9	e1600	124	127	70	126
27	e35	228	55	29	16	e16	7.1	e270	122	116	79	117
28	e34	220	54	30	15	e14	6.8	e120	115	105	70	106
29	e33	192	55	28	14	e13	6.3	e85	102	98	78	103
30	e120	143	58	26	---	e13	6.5	e140	97	96	65	100
31	e150	---	79	25	---	e14	---	e84	---	96	84	---
TOTAL	2519	6675	2561	5955	610	538	504.1	5750.9	8711	3524	4100	7646
MEAN	81.3	222	82.6	192	21.0	17.4	16.8	186	290	114	132	255
MAX	221	2600	151	3380	41	30	65	1600	660	270	592	2500
MIN	33	43	54	25	14	11	6.3	6.9	97	76	65	47
AC-FT	5000	13240	5080	11810	1210	1070	1000	11410	17280	6990	8130	15170
CFSM	3.25	8.90	3.30	7.68	.84	.69	.67	7.42	11.6	4.55	5.29	10.2
IN.	3.75	9.93	3.81	8.86	.91	.80	.75	8.56	12.96	5.24	6.10	11.38

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1992, BY WATER YEAR (WY)

	1990	1991	1992	1990	1991	1992	1990	1991	1992	1990	1991	1992
MEAN	174	168	84.7	127	46.6	34.7	25.5	85.9	140	86.8	96.0	135
MAX	266	222	86.7	192	71.1	48.7	31.8	186	290	114	132	255
(WY)	1991	1992	1991	1992	1991	1991	1991	1992	1992	1992	1992	1992
MIN	81.3	113	82.6	62.9	21.0	17.4	16.8	35.1	47.8	66.0	48.6	59.7
(WY)	1992	1991	1992	1991	1992	1992	1992	1991	1991	1990	1991	1990

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1990 - 1992

ANNUAL TOTAL	27414	49094.0	
ANNUAL MEAN	75.1	134	108
HIGHEST ANNUAL MEAN			134
LOWEST ANNUAL MEAN			82.2
HIGHEST DAILY MEAN	2600	Nov 8	3380
LOWEST DAILY MEAN	17	Jun 26	6.3
ANNUAL SEVEN-DAY MINIMUM	21	Jun 22	7.4
INSTANTANEOUS PEAK FLOW			28200
INSTANTANEOUS PEAK STAGE			27.36
ANNUAL RUNOFF (AC-FT)	54380	97380	78390
ANNUAL RUNOFF (CFSM)	3.00	5.37	4.33
ANNUAL RUNOFF (INCHES)	40.79	73.05	58.81
10 PERCENT EXCEEDS	130	233	164
50 PERCENT EXCEEDS	49	72	50
90 PERCENT EXCEEDS	25	14	19

## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February 1990 to September 1992

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,570 mg/L Jun. 11, 1992; Minimum daily mean, 5 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 46,800 tons (42,400 tonnes) Jan. 05, 1992; Minimum daily mean, 0.20 ton (0.18 tonne) May 05, 1992.

EXTREMES FOR WATER YEARS 1990-92.--

Water Year	Suspended-sediment concentration (mg/L)		Suspended-sediment discharge (tons per day)	
	maximum	minimum	maximum	minimum
1990	569 (Jun. 15)	41 (Apr. 30)	1,950 (Aug. 28)	2 (May, 21)
1991	950 (Oct. 21)	5 (Jun. 04-05)	5,740 (Oct. 21)	.33 (Jun. 04)
1992	1,570 (Jun. 11)	5 (Several days)	46,800 (Jan. 05)	.20 (May, 05)

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	---	---	---	e46	---	---	40	87	9.8
2	---	---	---	e38	---	---	37	81	8.2
3	---	---	---	e35	---	---	33	80	7.1
4	---	---	---	e30	---	---	32	79	7.1
5	---	---	---	e29	---	---	30	73	5.8
6	---	---	---	e40	---	---	28	69	5.2
7	---	---	---	e50	---	---	27	64	4.8
8	---	---	---	e65	---	---	26	64	4.5
9	---	---	---	e50	97	e13	29	64	5.0
10	---	---	---	46	93	12	35	72	6.9
11	---	---	---	36	79	7.8	34	83	7.9
12	---	---	---	32	73	6.5	46	93	11
13	---	---	---	33	87	7.3	50	102	14
14	---	---	---	41	94	10	130	206	82
15	---	---	---	37	93	9.6	64	138	25
16	---	---	---	32	75	6.8	56	120	18
17	---	---	---	35	74	6.7	56	121	19
18	---	---	---	41	83	8.8	40	91	10
19	---	---	---	35	81	7.7	34	77	7.2
20	---	---	---	39	96	11	33	80	7.2
21	---	---	---	60	118	21	30	75	6.3
22	---	---	---	64	125	24	27	66	4.7
23	---	---	---	57	124	18	31	74	5.9
24	---	---	---	204	267	188	29	75	5.8
25	---	---	---	60	121	20	28	64	4.8
26	---	---	---	48	96	12	26	61	4.4
27	---	---	---	41	90	10	27	64	4.9
28	---	---	---	36	85	8.5	29	71	5.4
29	---	---	---	---	---	---	32	72	6.3
30	---	---	---	---	---	---	30	70	5.4
31	---	---	---	---	---	---	29	67	5.3
TOTAL	---	---	---	1360	---	---	1178	---	324.9

e Estimated

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	27	63	4.7	19	49	2.6	18	47	2.2
2	26	61	4.4	20	50	2.7	19	48	2.4
3	27	62	4.5	19	79	3.8	18	47	2.3
4	26	65	4.5	19	89	4.8	19	63	3.3
5	27	62	4.5	19	89	4.7	41	160	18
6	25	59	4.1	18	87	4.3	53	121	19
7	23	57	3.4	18	83	3.7	39	67	7.0
8	22	57	3.3	22	64	3.9	24	60	4.0
9	22	57	3.2	154	141	412	38	80	9.8
10	21	50	2.8	247	303	301	26	67	4.7
11	20	52	2.6	118	184	66	21	72	3.8
12	21	55	3.2	44	93	12	19	50	2.5
13	42	84	10	34	78	7.2	19	53	2.5
14	37	80	8.6	36	60	5.6	515	375	1620
15	24	58	3.9	30	75	6.2	399	569	754
16	23	85	5.2	27	66	4.7	136	209	83
17	24	60	3.7	25	65	4.3	77	125	28
18	23	60	3.6	24	61	3.9	54	49	7.1
19	26	162	11	21	54	3.2	46	46	5.8
20	26	192	14	20	49	2.6	78	128	29
21	21	174	10	17	41	2.0	50	69	9.4
22	19	152	7.5	19	55	2.9	41	61	6.9
23	19	121	5.8	19	62	3.4	38	57	5.9
24	19	61	3.1	18	55	2.7	52	54	7.6
25	53	97	22	15	56	2.4	263	321	275
26	76	183	40	30	69	5.9	123	151	50
27	49	84	11	25	65	4.7	72	52	11
28	27	66	5.0	20	53	2.8	52	85	12
29	22	54	3.3	19	55	2.8	44	61	7.1
30	19	41	2.1	15	46	2.0	40	86	9.4
31	---	---	---	17	43	2.0	---	---	---
TOTAL	836	---	215.0	1148	---	892.8	2434	---	3002.7

## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	57	104	17	36	79	7.8	40	85	9.1
2	49	63	8.6	40	87	10	39	83	8.7
3	38	55	5.5	40	64	6.9	39	85	9.1
4	42	53	5.7	46	61	7.6	55	95	15
5	41	53	6.0	56	92	14	35	101	9.5
6	138	198	99	44	111	13	31	97	8.0
7	77	143	30	54	126	22	29	90	7.2
8	58	113	18	210	285	197	33	83	7.6
9	42	64	7.3	81	148	34	32	78	6.9
10	41	43	4.8	800	619	2570	34	72	6.4
11	39	46	4.8	193	268	160	28	66	5.1
12	36	46	4.3	102	157	41	30	71	5.7
13	37	53	6.4	115	190	64	52	102	15
14	52	105	17	82	151	36	84	147	43
15	55	107	18	67	106	19	79	143	33
16	54	100	17	61	74	12	111	183	67
17	49	101	15	54	62	8.9	76	129	28
18	70	133	28	51	47	6.3	85	150	47
19	135	210	81	51	35	4.7	78	135	30
20	62	108	20	46	25	3.0	45	92	11
21	44	78	9.4	43	24	2.8	39	84	9.0
22	36	78	7.5	46	24	2.9	36	80	8.0
23	31	51	4.2	49	80	9.6	99	151	80
24	48	66	13	53	26	3.6	58	113	19
25	224	291	205	47	26	3.4	44	94	12
26	222	287	233	50	26	3.4	103	154	63
27	89	165	43	38	27	2.6	70	129	27
28	55	108	16	526	320	1950	143	197	186
29	46	96	13	134	204	97	94	162	48
30	41	86	9.5	60	116	20	70	137	29
31	37	82	8.4	45	92	11	---	---	---
TOTAL	2045	---	975.4	3320	---	5343.5	1791	---	853.3

## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	65	120	23	163	236	100	102	199	59
2	51	92	13	152	225	89	84	154	37
3	57	77	11	138	177	66	122	225	82
4	50	62	8.8	359	373	571	95	179	50
5	46	65	8.0	320	309	340	70	131	24
6	41	70	8.1	199	277	157	61	118	19
7	37	77	7.9	152	182	78	56	111	17
8	45	94	13	130	103	39	54	106	15
9	135	189	146	113	73	22	53	104	15
10	133	204	75	105	58	16	51	54	7.5
11	88	159	40	96	45	11	55	49	7.5
12	60	125	21	89	30	7.0	49	51	7.0
13	142	223	91	84	15	3.2	42	65	7.5
14	117	187	75	79	9	1.9	229	295	214
15	97	223	59	76	9	1.8	120	180	61
16	353	382	734	76	9	1.8	86	154	36
17	144	144	66	74	10	1.9	70	132	25
18	301	243	451	71	10	1.9	61	117	19
19	724	351	877	70	10	1.8	56	109	16
20	410	391	1820	69	10	1.8	56	109	16
21	1390	950	5740	66	11	1.9	52	106	15
22	243	123	104	70	14	2.5	53	98	13
23	170	195	90	64	17	2.9	51	85	11
24	484	421	1530	60	20	3.1	52	68	9.2
25	810	638	1960	60	20	3.2	48	45	5.8
26	800	663	1650	74	75	20	45	15	1.8
27	398	430	506	90	151	35	47	9	1.2
28	269	340	267	83	151	35	54	11	1.7
29	213	285	162	64	145	26	70	63	15
30	192	285	152	159	235	115	78	158	34
31	188	271	140	---	---	---	566	508	1120
TOTAL	8253	---	16848.8	3405	---	1756.7	2688	---	1962.2

## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	124	117	42	54	106	16	58	340	54
2	77	29	6.8	46	92	11	50	306	41
3	65	21	3.6	56	103	15	53	274	38
4	59	21	3.3	50	102	14	67	240	43
5	82	79	29	121	164	115	63	235	41
6	80	154	38	129	196	79	106	235	65
7	86	136	32	81	134	31	89	235	55
8	90	161	42	45	94	12	93	230	57
9	89	175	44	40	84	9.1	67	228	42
10	79	134	27	42	89	11	54	228	33
11	69	126	23	111	180	65	49	227	30
12	70	131	25	133	189	118	50	227	30
13	66	131	25	155	252	122	45	226	28
14	67	56	9.6	68	197	38	47	225	29
15	80	48	10	60	204	33	45	229	29
16	65	48	8.6	51	201	29	40	241	27
17	55	48	7.4	46	198	24	37	250	25
18	50	46	6.4	45	193	24	38	260	26
19	49	45	5.8	80	159	35	47	268	32
20	47	43	5.3	74	158	37	36	303	29
21	46	42	5.1	94	145	38	34	333	31
22	44	42	5.1	69	118	23	46	345	44
23	46	42	5.3	58	109	17	46	363	45
24	44	42	5.2	59	110	17	35	375	36
25	48	42	5.2	59	117	19	32	390	35
26	46	48	6.1	58	111	18	31	408	33
27	46	57	7.1	49	98	13	31	432	35
28	46	67	8.1	59	216	38	30	433	35
29	45	92	11	---	---	---	e34	425	e37
30	43	82	10	---	---	---	e29	418	e36
31	47	104	13	---	---	---	e29	415	e33
TOTAL	1950	---	475.0	1992	---	1021.1	1511	---	1154

e Estimated

## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	e29	400	e31	e22	358	e21	25	6	.41
2	e30	375	e30	e21	358	e20	30	6	.48
3	e30	378	e31	e22	358	e21	22	6	.35
4	e28	378	e29	e30	358	e29	23	5	.33
5	e28	378	e29	e26	358	e25	28	5	.37
6	e28	378	e29	e25	58	e3.9	52	96	14
7	e27	378	e28	e27	61	e4.4	42	82	9.5
8	e35	378	e36	e25	58	e3.9	33	322	26
9	e39	378	e40	e24	56	e3.6	29	64	4.9
10	e57	378	e58	e22	52	e3.1	26	68	4.8
11	e38	378	e58	e23	54	e3.4	32	93	8.0
12	e44	378	e45	e55	107	e16	82	135	37
13	e34	378	e35	e28	63	e4.8	38	93	9.9
14	e29	378	e30	e23	54	e3.4	27	68	5.0
15	e55	378	e56	e24	56	e3.6	31	67	5.9
16	e46	390	e48	e26	690	e48	23	55	3.5
17	e34	400	e37	e23	760	e47	20	50	2.8
18	e37	400	e40	e39	830	e87	20	49	2.7
19	e32	410	e35	e29	920	e72	19	50	2.5
20	e26	415	e29	e30	67	e5.4	19	50	2.5
21	e26	415	e29	e54	105	e15	26	61	4.6
22	e28	425	e32	57	99	15	25	66	4.7
23	e26	416	e29	31	83	7.0	21	57	3.4
24	e24	400	e26	23	68	4.5	22	42	2.5
25	e27	400	e29	197	244	233	21	59	3.4
26	e26	380	e27	62	128	25	17	51	2.4
27	e25	375	e25	32	72	6.5	19	52	2.7
28	e23	370	e23	26	61	4.4	24	57	3.8
29	e22	358	e21	22	58	3.4	30	68	6.7
30	e21	358	e20	21	24	1.4	609	383	1540
31	---	---	---	20	7	.37	---	---	---
TOTAL	954	---	1015	1089	---	741.07	1435	---	1715.14

e Estimated

## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	597	552	1410	38	85	8.7	43	100	12
2	143	230	95	36	77	7.4	60	98	16
3	83	161	36	33	73	6.6	35	78	7.6
4	71	131	24	29	67	5.5	31	71	5.8
5	53	106	16	28	65	5.1	29	70	5.5
6	47	91	11	30	69	5.8	33	78	7.0
7	40	82	8.6	29	56	4.3	28	85	6.7
8	34	76	7.2	25	61	3.9	31	78	6.7
9	33	72	6.4	24	61	3.8	67	119	28
10	33	79	7.1	22	57	3.3	55	109	18
11	27	75	5.8	23	55	3.5	49	90	12
12	25	60	4.1	20	54	2.9	37	81	7.9
13	25	59	4.1	22	58	3.4	34	77	7.0
14	24	57	3.8	26	71	5.3	34	76	6.8
15	75	115	57	32	69	6.1	33	73	6.5
16	371	362	442	26	59	4.2	31	74	6.0
17	117	181	62	49	89	12	330	414	758
18	69	136	26	62	101	17	132	46	19
19	56	139	22	40	82	8.8	80	28	5.9
20	65	126	23	29	74	5.8	61	23	3.9
21	50	97	13	61	84	14	79	94	25
22	42	89	10	145	208	112	187	265	157
23	44	96	11	95	173	54	217	277	159
24	56	113	18	49	96	13	130	206	77
25	48	104	14	38	80	8.1	85	153	34
26	38	85	8.8	35	74	6.8	69	136	26
27	42	85	9.4	118	171	97	88	157	41
28	40	85	9.4	170	267	138	165	249	123
29	39	89	9.0	71	136	28	268	361	277
30	64	143	26	56	104	15	198	271	147
31	51	115	16	46	91	11	---	---	---
TOTAL	2502	---	2415.7	1507	---	620.3	2719	---	2012.3
YEAR	30005		31737.31						



RIO GRANDE DE LOIZA BASIN

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50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	159	230	102	e66	81	e14	124	100	33
2	221	367	245	e46	55	e6.8	127	69	22
3	162	229	103	e54	65	e9.5	127	57	20
4	121	156	49	e49	59	e7.8	151	48	19
5	118	176	63	e43	52	e6.0	114	38	12
6	102	142	42	e66	81	e14	102	41	11
7	79	101	22	e76	94	e19	e94	48	e12
8	73	89	17	e2600	1000	e18200	e88	48	e11
9	76	97	20	402	851	1260	e90	43	e10
10	72	95	20	248	410	284	e84	39	e8.9
11	68	85	16	173	265	131	e76	38	e7.8
12	99	162	54	150	166	68	e80	38	e8.2
13	78	95	20	127	95	35	e76	38	e7.8
14	66	88	17	115	75	23	e70	38	e7.2
15	68	88	16	103	70	19	e72	25	e4.9
16	63	88	15	116	130	51	e76	15	e3.1
17	79	89	19	103	145	44	e74	9	e1.8
18	63	95	16	88	111	26	e62	6	e1.1
19	54	108	16	82	103	23	e60	5	e.82
20	43	119	14	79	99	21	e74	5	e1.0
21	43	121	14	94	127	46	e130	7	e2.6
22	40	110	12	240	385	286	e68	10	e1.8
23	e66	81	e14	142	87	35	e67	10	e1.8
24	e50	60	e8.1	299	553	567	61	10	1.7
25	e44	53	e6.3	196	220	128	59	7	1.2
26	e40	48	e5.2	135	60	23	54	5	.77
27	e35	42	e4.0	228	369	250	55	7	1.1
28	e34	41	e3.8	220	363	230	54	10	1.5
29	e33	40	e3.6	192	314	179	55	8	1.2
30	e120	163	e53	143	173	69	58	7	1.1
31	e150	213	e86	---	---	---	79	14	3.0
TOTAL	2519	---	1096.0	6675	---	22075.1	2561	---	220.39

e Estimated

## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	71	15	3.2	24	45	2.8	12	18	.57
2	55	15	2.3	22	55	3.3	11	18	.55
3	51	18	2.4	22	61	3.6	e13	20	e.66
4	48	20	2.6	26	61	3.9	e20	20	e1.1
5	3380	1380	46800	22	59	3.7	e30	20	e1.6
6	1080	507	1950	41	58	6.2	e20	20	e1.1
7	168	190	92	38	59	6.2	e22	20	e1.2
8	117	63	21	26	81	5.3	e18	21	e1.0
9	83	56	13	23	94	5.9	e17	21	e.94
10	85	68	14	33	113	10	e15	20	e.82
11	66	65	12	25	74	5.3	e14	20	e.76
12	57	55	8.7	20	48	2.7	e14	20	e.76
13	53	45	6.4	18	27	1.3	e15	20	e.82
14	47	34	4.3	21	19	1.1	e20	20	e1.1
15	48	31	4.1	25	20	1.3	e14	20	e.76
16	46	46	5.6	21	19	1.1	e23	20	e1.2
17	48	59	7.6	17	17	.75	e21	20	e1.1
18	40	53	5.6	16	14	.60	e28	20	e1.5
19	38	38	3.8	16	14	.61	e18	20	e.98
20	37	28	2.7	14	19	.77	e20	19	e1.0
21	35	28	2.6	14	22	.84	e21	17	e.96
22	34	30	2.6	16	21	.84	e17	16	e.74
23	31	29	2.5	16	20	.91	e16	16	e.70
24	33	25	2.2	17	19	.92	e14	16	e.60
25	32	21	1.9	16	18	.82	e18	18	e.88
26	34	20	1.7	16	16	.66	e17	22	e.99
27	29	20	1.6	16	15	.63	e16	27	e1.2
28	30	20	1.6	15	16	.60	e14	34	e1.3
29	28	21	1.7	14	17	.60	e13	41	e1.4
30	26	26	1.8	---	---	---	e13	46	e1.6
31	25	35	2.3	---	---	---	e14	251	e9.5
TOTAL	5955	---	48983.8	610	---	73.25	538	---	39.39

e Estimated

## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	e19	41	e2.1	9.1	16	.52	e300	533	e432
2	e16	32	e1.4	50	65	12	e270	459	e335
3	e14	25	e.93	12	15	.58	e100	131	e35
4	13	22	.78	7.8	10	.22	e540	1200	e1750
5	11	24	.70	6.9	10	.20	e150	212	e86
6	10	24	.70	43	54	15	e140	196	e74
7	14	20	.70	36	50	6.1	e250	412	e278
8	12	18	.63	16	18	.78	e490	1050	e1390
9	10	19	.53	12	16	.52	e520	1140	e1600
10	10	22	.57	11	13	.36	e470	995	e1260
11	13	21	.69	12	12	.36	e660	1570	e2800
12	47	55	10	12	14	.49	e500	1080	e1460
13	35	47	5.8	8.4	11	.25	e460	165	e205
14	30	38	4.3	8.7	11	.31	e400	155	e167
15	26	32	2.7	28	35	3.4	e360	145	e141
16	14	19	.76	e600	3290	e9390	377	138	129
17	12	13	.41	e120	163	e53	385	660	811
18	11	10	.30	e60	73	e12	289	371	316
19	22	28	2.4	e45	46	e5.5	179	95	47
20	65	80	21	e80	17	e3.6	173	76	35
21	23	23	1.6	e56	15	e2.3	466	1370	3230
22	14	20	.76	e38	83	e8.5	210	200	123
23	11	18	.59	e800	1900	e4100	179	53	27
24	9.2	17	.47	e1200	2660	e8620	150	16	6.3
25	8.3	18	.39	e180	264	e128	133	11	3.9
26	7.9	21	.46	e1600	3350	e14500	124	11	3.6
27	7.1	25	.49	e270	459	e335	122	11	3.4
28	6.8	31	.57	e120	163	e53	115	10	3.1
29	6.3	29	.49	e85	108	e25	102	10	2.8
30	6.5	20	.36	e140	196	e74	97	10	2.6
31	---	---	---	e84	106	e24	---	---	---
TOTAL	504.1	---	63.58	5750.9	---	37374.99	8711	---	16756.7

e Estimated

## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	92	10	2.5	100	39	10	75	73	14
2	80	10	2.2	100	41	12	64	106	19
3	78	10	2.1	109	89	26	103	129	42
4	99	73	38	104	138	40	71	35	7.6
5	127	154	63	592	2490	5600	61	28	4.7
6	81	55	13	273	811	653	76	27	5.0
7	76	23	4.5	192	484	235	73	23	4.5
8	92	93	27	157	238	106	59	20	3.5
9	95	59	17	160	246	122	177	252	159
10	83	17	3.8	241	324	221	72	73	16
11	134	167	79	161	196	83	60	44	7.2
12	98	71	22	168	174	76	54	32	4.7
13	80	23	4.9	130	160	54	49	22	2.9
14	79	17	3.7	157	216	94	47	22	2.7
15	90	18	4.1	142	291	119	48	37	4.7
16	86	19	4.3	116	143	45	e75	74	e15
17	179	287	191	103	436	125	e420	245	e278
18	111	108	32	92	23	5.8	e110	209	e62
19	132	147	61	85	25	5.8	e800	453	e977
20	159	253	107	85	28	6.3	e2500	418	e2820
21	123	164	53	79	30	6.6	e1400	350	e1320
22	270	776	767	76	41	8.5	e230	196	e123
23	134	130	49	74	64	13	180	41	20
24	116	63	21	85	73	16	153	18	7.4
25	192	217	148	73	52	10	137	20	7.1
26	127	138	50	70	28	5.5	126	31	10
27	116	99	30	79	29	6.3	117	44	14
28	105	88	25	70	34	6.5	106	49	14
29	98	79	21	78	37	8.3	103	40	11
30	96	55	14	65	36	6.5	100	26	7.1
31	96	39	10	84	40	9.1	---	---	---
TOTAL	3524	---	1870.1	4100	---	7735.2	7646	---	5983.1
YEAR	49094.0		142271.60						

e Estimated

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
NOV 1991							
08...	2056	1190	4460	14300	21	29	35
JAN 1992							
05...	1936	27800	17300	1300000	19	24	29
MAY							
16...	1616	6600	11700	18900	22	27	31
JUN							
21...	0535	2110	7360	41900	18	26	30
SEP							
05...	1905	2500	6300	42500	19	23	27

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
NOV 1991							
08...	45	55	75	90	97	99	100
JAN 1992							
05...	36	44	55	77	92	98	99
MAY							
16...	40	50	67	86	97	99	100
JUN							
21...	41	52	70	87	96	99	100
SEP							
05...	37	44	58	77	90	98	99

## RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1991					
08...	1641	2080	5420	30400	66
08...	2141	8130	3810	83670	81
24...	1040	308	999	831	87
JAN 1992					
05...	1806	3900	7410	78100	65
05...	2236	8080	1160	25400	99
06...	1220	634	540	925	82
FEB					
25...	0945	14	172	6.5	94
JUN					
21...	0505	2550	6280	43300	56
21...	0720	854	3000	6890	86
JUL					
17...	0927	295	942	750	72
22...	1030	476	2560	3290	86
AUG					
05...	0925	461	3010	3750	83
05...	0940	407	4390	4820	74
05...	1155	323	2790	2430	89
05...	2020	2040	5490	30270	57
05...	2205	1080	2210	6450	100

# RIO GRANDE DE LOIZA BASIN

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50053025 RIO TURABO ABOVE BORINQUEN, PR

LOCATION.--Lat 18°09'35", long 66°02'26", Hydrologic Unit 21010005, on left bank at Highway 765, 1.2 mi (1.9 km) south of Villa Borinquen, 8.1 mi (13.0 km) upstream from Río Grande de Loiza.

DRAINAGE AREA.--7.14 mi<sup>2</sup> (18.49 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 492 ft (150 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

## DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	8.2	18	13	14	10	7.3	15	65	14	11	9.9
2	37	8.1	17	12	14	11	6.3	37	29	14	13	10
3	17	8.4	21	12	14	10	5.9	8.3	24	14	14	17
4	15	8.4	23	12	15	10	5.7	6.2	68	13	14	11
5	13	8.6	18	605	13	10	5.5	5.9	26	15	183	9.3
6	11	8.2	16	328	29	11	5.8	11	22	12	62	11
7	11	133	15	31	23	10	9.8	10	29	11	28	11
8	10	227	15	13	18	10	8.0	7.2	40	16	22	11
9	13	111	14	8.8	16	9.0	6.9	6.2	27	14	18	43
10	11	52	14	11	21	9.0	6.7	6.2	114	12	22	12
11	9.7	25	13	8.6	17	8.6	8.2	7.0	e125	20	20	9.6
12	14	e21	14	9.7	15	8.4	34	7.7	149	13	21	8.7
13	9.7	18	13	12	13	8.6	13	7.9	e101	11	17	8.2
14	9.4	16	13	14	14	9.3	15	6.3	e69	11	24	7.9
15	8.8	14	e13	18	15	9.9	10	9.0	44	11	19	7.5
16	8.9	21	15	43	12	8.6	7.5	88	36	12	16	34
17	9.5	17	13	47	12	19	6.8	16	82	34	15	27
18	9.2	15	13	27	11	11	6.9	10	37	12	12	17
19	8.5	14	13	24	12	9.0	24	8.3	26	17	12	87
20	8.0	13	24	22	11	8.6	18	24	24	19	12	205
21	8.1	20	18	21	11	8.6	7.7	11	137	13	11	147
22	8.4	37	14	19	12	8.5	7.0	8.6	37	34	10	33
23	8.3	20	13	19	12	7.5	6.3	150	28	16	10	21
24	7.9	127	13	19	12	7.5	5.9	151	23	12	11	17
25	8.0	32	13	20	12	7.3	5.7	49	20	39	10	14
26	7.9	22	12	19	16	6.8	5.4	134	19	16	16	13
27	7.3	47	12	17	12	6.8	5.4	40	18	13	13	11
28	7.3	38	12	20	11	6.6	5.4	19	16	12	11	10
29	7.3	27	12	17	11	6.2	5.1	14	15	11	11	9.5
30	7.3	21	13	16	---	6.2	5.6	40	16	12	9.8	9.4
31	7.3	---	14	15	---	7.0	---	15	---	11	12	---
TOTAL	334.8	1137.9	461	1473.1	418	280.0	270.8	928.8	1466	484	679.8	842.0
MEAN	10.8	37.9	14.9	47.5	14.4	9.03	9.03	30.0	48.9	15.6	21.9	28.1
MAX	37	227	24	605	29	19	34	151	149	39	183	205
MIN	7.3	8.1	12	8.6	11	6.2	5.1	5.9	15	11	9.8	7.5
AC-FT	664	2260	914	2920	829	555	537	1840	2910	960	1350	1670
CFSM	1.51	5.31	2.08	6.66	2.02	1.27	1.26	4.20	6.84	2.19	3.07	3.93
IN.	1.74	5.93	2.40	7.67	2.18	1.46	1.41	4.84	7.64	2.52	3.54	4.39

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1992, BY WATER YEAR (WY)

	1990	1991	1992	1990	1991	1992	1990	1991	1992	1990	1991	1992
MEAN	29.5	28.3	19.0	23.6	13.8	10.7	7.37	16.6	26.2	18.5	18.2	21.4
MAX	48.2	37.9	23.1	47.5	18.1	11.6	9.03	30.0	48.9	21.2	21.9	28.1
(WY)	1991	1992	1991	1992	1991	1991	1992	1992	1991	1992	1992	1992
MIN	10.8	18.7	14.9	7.85	8.93	9.03	6.18	8.99	9.59	15.6	10.8	14.1
(WY)	1992	1991	1992	1990	1990	1992	1990	1990	1991	1992	1991	1990

## SUMMARY STATISTICS

### FOR 1991 CALENDAR YEAR

### FOR 1992 WATER YEAR

### WATER YEARS 1990 - 1992

ANNUAL TOTAL	5768.1	8776.2	
ANNUAL MEAN	15.8	24.0	21.0
HIGHEST ANNUAL MEAN			24.0
LOWEST ANNUAL MEAN			18.1
HIGHEST DAILY MEAN	277	605	605
LOWEST DAILY MEAN	4.4	5.1	4.1
ANNUAL SEVEN-DAY MINIMUM	4.4	5.5	4.4
INSTANTANEOUS PEAK FLOW		3590	3590
INSTANTANEOUS PEAK FLOW		14.37	14.37
INSTANTANEOUS LOW FLOW		5.1	3.9
ANNUAL RUNOFF (AC-FT)	11440	17410	15240
ANNUAL RUNOFF (CFSM)	2.21	3.36	2.95
ANNUAL RUNOFF (INCHES)	30.05	45.72	40.04
10 PERCENT EXCEEDS	21	37	31
50 PERCENT EXCEEDS	9.1	13	10
90 PERCENT EXCEEDS	5.7	7.3	5.7

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: January 1990 to September 1992

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 955 mg/L Jan. 05, 1992; Minimum daily mean, 1 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 4,920 tons (4,460 tonnes) Jan. 05, 1992; Minimum daily mean, 0.01 ton (0.01 tonne) Several days.

EXTREMES FOR WATER YEARS 1990-92.--

Water Year	Suspended-sediment concentration (mg/L) maximum	minimum	Suspended-sediment discharge (tons per day) maximum	minimum
1990	469 (May, 10)	3 (Several days)	220 (Jun. 14)	.04 (Several days)
1991	294 (Oct. 21)	1 (Several days)	598 (Sep. 17)	.01 (Several days)
1992	955 (Jan. 05)	1 (Several days)	4,920 (Jan. 05)	.02 (Several days)

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	JANUARY			FEBRUARY			MARCH		
1	e7.6	---	---	6.9	6	.12	8.2	7	.16
2	e7.4	---	---	7.7	6	.12	7.6	6	.14
3	e6.4	---	---	6.8	6	.10	6.8	6	.11
4	e6.0	---	---	6.3	5	.09	6.7	6	.10
5	e6.2	---	---	6.2	5	.09	6.5	6	.10
6	e6.4	---	---	6.1	5	.09	6.3	6	.10
7	e6.6	---	---	6.3	6	.11	6.2	6	.10
8	e6.2	---	---	8.3	7	.16	6.2	6	.10
9	e6.4	---	---	9.4	9	.22	8.4	7	.15
10	e7.4	---	---	8.3	7	.18	8.3	8	.19
11	e6.8	---	---	6.8	6	.11	10	10	.32
12	e6.2	---	---	6.4	6	.10	22	21	1.5
13	e6.0	---	---	6.0	6	.10	34	30	3.6
14	e5.8	---	---	11	7	.21	80	77	32
15	e5.6	---	---	7.7	7	.16	15	13	.55
16	e5.6	---	---	6.9	6	.12	16	15	.80
17	e5.4	---	---	6.7	6	.10	12	11	.37
18	e6.0	---	---	7.6	6	.12	8.8	7	.17
19	6.8	6	.10	6.7	6	.10	7.4	6	.13
20	14	13	.79	7.9	7	.16	6.9	6	.12
21	7.4	7	.15	12	12	.42	6.7	6	.11
22	6.1	5	.09	11	10	.31	6.3	6	.10
23	5.9	5	.09	12	11	.51	6.3	5	.08
24	6.6	6	.10	35	32	5.2	6.2	5	.08
25	7.5	7	.15	10	9	.26	6.1	5	.08
26	26	25	2.5	8.5	7	.18	6.1	5	.08
27	12	14	.47	7.7	7	.15	6.0	5	.08
28	13	11	.36	7.8	7	.15	6.2	5	.08
29	9.0	8	.23	---	---	---	6.0	5	.08
30	7.8	6	.14	---	---	---	6.5	5	.08
31	7.4	6	.12	---	---	---	6.1	5	.08
TOTAL	243.5	---	---	250.0	---	9.74	351.8	---	41.74

e Estimated



## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL				MAY			JUNE		
1	5.6	5	.08	5.4	5	.06	4.9	5	.06
2	5.4	5	.08	5.3	5	.06	5.4	5	.08
3	5.3	5	.07	5.2	4	.06	4.9	5	.06
4	5.2	5	.06	5.4	4	.06	5.8	6	.10
5	5.1	5	.06	5.5	4	.06	6.2	10	.16
6	5.1	5	.06	5.3	5	.06	6.3	13	.21
7	4.9	5	.06	5.2	5	.07	8.0	13	.27
8	5.0	5	.06	5.3	6	.08	6.0	11	.18
9	4.9	5	.06	81	84	126	11	8	.25
10	5.1	5	.06	39	469	35	6.9	7	.14
11	4.9	4	.06	13	25	.96	6.6	7	.12
12	5.1	3	.05	7.3	17	.34	6.6	7	.12
13	8.9	3	.09	5.9	13	.20	6.3	7	.12
14	6.4	4	.07	8.9	7	.18	162	161	220
15	5.5	4	.06	6.2	4	.08	92	91	41
16	5.2	4	.06	5.4	4	.06	17	16	.81
17	5.1	4	.06	5.2	4	.06	11	11	.31
18	5.1	4	.06	5.0	4	.06	8.3	10	.22
19	7.0	4	.08	4.9	4	.05	7.8	8	.18
20	6.6	4	.07	4.8	4	.04	10	8	.21
21	5.3	4	.06	4.7	4	.04	7.9	7	.15
22	5.2	4	.06	4.4	4	.04	6.8	7	.17
23	5.3	4	.05	4.1	4	.04	7.1	7	.17
24	4.9	4	.05	4.1	4	.04	10	7	.18
25	11	11	.65	4.1	4	.04	99	100	56
26	16	16	1.0	4.9	4	.06	37	33	4.3
27	8.9	10	.28	4.9	4	.06	14	13	.50
28	6.3	6	.11	4.6	4	.04	10	10	.28
29	5.6	6	.08	4.6	4	.04	8.3	7	.17
30	5.4	5	.07	4.4	4	.04	8.1	7	.15
31	---	---	---	4.6	4	.04	---	---	---
TOTAL	185.3	---	3.72	278.6	---	164.02	601.2	---	326.59

## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	15	15	.79	6.9	4	.08	14	12	.72
2	9.8	9	.25	8.2	4	.09	11	11	.35
3	8.7	7	.18	7.5	3	.08	9.8	8	.21
4	14	13	.70	8.7	3	.08	13	12	.53
5	9.1	8	.20	11	3	.09	9.0	8	.20
6	15	15	.79	7.7	3	.07	8.4	7	.18
7	12	11	.36	11	9	.42	11	9	.27
8	9.9	9	.25	30	28	3.2	9.8	10	.27
9	8.6	8	.20	13	11	.39	8.8	10	.23
10	8.9	7	.18	178	176	184	8.2	8	.18
11	7.9	7	.15	30	27	2.8	7.9	8	.17
12	8.1	7	.14	15	10	.40	8.4	8	.19
13	8.3	8	.17	13	7	.26	9.0	7	.19
14	9.2	8	.21	11	7	.21	9.8	8	.22
15	20	19	2.1	9.7	7	.19	9.2	13	.32
16	12	27	.89	8.7	8	.20	13	14	.50
17	20	31	1.9	8.1	10	.21	11	10	.28
18	24	23	4.3	8.2	10	.22	23	24	2.8
19	50	46	11	9.0	10	.23	12	6	.25
20	15	10	.41	8.1	10	.22	9.1	6	.15
21	11	4	.13	14	16	1.2	8.9	6	.13
22	11	4	.11	18	18	1.5	8.7	6	.13
23	12	4	.13	12	11	.41	10	6	.17
24	13	6	.22	11	9	.28	9.8	7	.19
25	101	115	76	9.2	12	.31	26	23	5.4
26	92	91	79	8.4	8	.19	14	14	.79
27	19	14	.83	7.4	6	.12	9.7	12	.34
28	12	6	.21	96	96	107	9.1	12	.31
29	9.4	5	.13	67	73	37	8.4	12	.28
30	8.1	5	.11	19	18	1.1	104	107	142
31	7.2	5	.09	12	11	.33	---	---	---
TOTAL	581.2	---	182.13	676.8	---	342.88	424.0	---	157.95

RIO GRANDE DE LOIZA BASIN

245

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	13	21	.74	18	8	.41	17	10	.51
2	8.0	13	.28	17	9	.42	16	10	.42
3	8.4	14	.32	16	10	.44	36	31	5.6
4	7.7	13	.27	63	58	43	22	11	.63
5	6.5	11	.20	55	54	27	16	7	.32
6	6.1	10	.16	26	22	1.7	15	5	.23
7	6.4	10	.18	21	12	.66	14	5	.19
8	7.4	10	.20	19	11	.54	13	5	.18
9	6.4	25	.43	17	9	.41	13	5	.18
10	8.3	30	.68	16	7	.29	13	5	.18
11	7.4	30	.60	15	6	.24	13	3	.10
12	6.3	30	.52	15	6	.24	13	3	.12
13	22	30	1.8	15	5	.20	12	4	.15
14	30	29	2.3	14	5	.18	87	85	34
15	25	23	1.6	14	5	.18	35	33	7.3
16	148	138	55	14	5	.18	18	16	.85
17	e45	40	e4.9	14	5	.18	15	10	.39
18	e60	53	e8.6	13	5	.20	14	10	.37
19	e70	62	e12	13	6	.24	13	10	.36
20	e50	44	5.9	13	7	.25	12	9	.31
21	e300	294	e238	14	8	.34	12	7	.23
22	42	36	3.9	16	10	.42	12	5	.17
23	33	31	2.8	13	8	.31	11	5	.14
24	64	64	34	12	6	.19	11	7	.22
25	126	125	88	12	5	.17	11	12	.36
26	204	206	192	14	5	.18	11	15	.41
27	80	50	19	19	13	.93	10	14	.38
28	37	12	1.2	15	12	.46	10	11	.29
29	26	12	.86	15	12	.50	12	8	.26
30	22	12	.71	22	11	.62	15	11	.58
31	19	7	.37	---	---	---	195	195	187
TOTAL	1494.9	---	677.52	560	---	81.08	717	---	242.43

e Estimated

## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	29	23	2.1	11	5	.16	12	8	.29
2	19	5	.26	9.8	5	.13	11	9	.28
3	16	5	.20	10	5	.13	11	9	.28
4	13	5	.18	10	5	.13	16	9	.38
5	45	42	25	19	17	1.9	13	10	.36
6	21	19	1.2	14	16	.62	18	10	.45
7	19	17	.77	12	13	.42	20	11	.57
8	21	24	1.5	11	11	.31	15	12	.45
9	21	35	1.9	9.8	10	.26	12	13	.44
10	21	40	2.2	12	11	.34	11	13	.40
11	18	35	1.8	32	31	4.1	11	12	.34
12	17	24	1.0	97	96	85	10	8	.24
13	15	12	.50	41	33	6.1	9.7	6	.16
14	15	7	.28	19	12	.59	10	4	.12
15	17	7	.30	15	12	.47	9.1	3	.09
16	15	7	.27	13	12	.42	8.5	3	.07
17	13	7	.23	12	12	.39	8.0	3	.06
18	12	7	.22	13	11	.38	9.1	3	.07
19	11	8	.26	17	10	.43	10	3	.09
20	11	11	.30	18	7	.34	8.5	4	.10
21	11	23	.67	19	6	.30	7.6	5	.12
22	11	25	.74	15	5	.23	12	7	.21
23	11	21	.61	14	5	.18	9.5	8	.21
24	9.9	16	.42	14	5	.18	7.4	8	.17
25	9.1	11	.26	13	5	.18	7.3	6	.11
26	9.0	6	.15	12	5	.17	43	4	.46
27	8.9	5	.13	12	6	.18	9.7	7	.17
28	9.6	4	.11	12	7	.24	8.1	14	.30
29	9.3	4	.10	---	---	---	7.6	15	.29
30	9.2	4	.11	---	---	---	7.4	13	.25
31	12	5	.15	---	---	---	6.9	12	.22
TOTAL	479.0	---	43.92	506.6	---	104.28	359.4	---	7.75

## 50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	6.9	10	.18	5.7	10	.15	6.2	1	.01
2	6.7	8	.15	5.7	12	.18	6.5	1	.02
3	6.6	8	.14	5.7	12	.18	6.2	1	.02
4	6.6	8	.14	7.1	11	.20	6.0	1	.02
5	6.6	8	.14	6.3	7	.12	6.4	1	.02
6	6.6	8	.14	6.1	3	.06	7.7	1	.01
7	6.5	10	.17	5.7	1	.03	7.6	1	.01
8	10	11	.30	5.7	1	.02	6.9	1	.02
9	7.5	9	.18	6.3	1	.02	6.7	1	.02
10	10	7	.18	6.1	1	.01	6.3	1	.02
11	7.6	7	.15	21	18	5.6	8.3	2	.05
12	7.9	7	.16	11	5	.17	19	13	1.1
13	7.2	9	.17	6.1	1	.03	8.3	4	.09
14	6.9	10	.18	5.8	1	.02	7.3	4	.10
15	e8.4	12	e.28	6.0	1	.02	6.7	5	.10
16	8.2	18	.39	5.8	1	.02	6.1	4	.08
17	6.9	17	.33	5.5	1	.02	6.2	3	.05
18	7.1	13	.23	6.9	1	.01	6.0	1	.03
19	6.4	8	.15	6.3	1	.01	5.8	1	.02
20	6.3	8	.14	6.0	1	.02	5.7	1	.02
21	6.3	8	.14	6.5	1	.01	6.1	1	.02
22	6.3	8	.14	6.8	1	.02	6.1	1	.02
23	6.2	8	.13	5.9	1	.02	5.8	1	.02
24	6.1	9	.14	5.4	1	.02	5.9	1	.02
25	5.9	10	.17	130	136	137	5.7	1	.02
26	6.3	10	.18	11	11	.36	5.7	1	.02
27	6.2	7	.12	7.8	9	.19	5.8	1	.03
28	5.7	6	.10	7.0	10	.18	5.5	2	.03
29	5.7	6	.10	6.6	8	.14	8.3	7	.20
30	5.7	6	.10	6.6	4	.07	87	82	92
31	---	---	---	6.4	1	.02	---	---	---
TOTAL	207.3	---	5.22	340.8	---	144.92	287.8	---	94.19

e Estimated

## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	102	153	77	5.1	2	.03	6.2	12	.20
2	14	66	2.8	5.1	1	.02	7.4	12	.26
3	9.4	19	.51	5.1	1	.02	5.7	12	.18
4	8.5	14	.33	4.8	1	.02	5.4	13	.18
5	7.6	8	.16	4.9	1	.02	5.4	13	.18
6	7.4	5	.10	4.9	1	.02	5.7	14	.20
7	6.8	3	.07	4.8	2	.02	5.6	14	.21
8	6.3	2	.05	4.4	2	.03	5.3	15	.21
9	6.4	1	.03	4.4	2	.03	11	15	.45
10	6.3	1	.02	4.4	2	.03	7.3	17	.34
11	6.2	1	.02	4.4	1	.02	7.5	17	.35
12	5.7	1	.02	4.4	1	.02	6.3	15	.28
13	5.6	1	.02	4.4	1	.02	6.0	13	.22
14	5.1	1	.02	4.4	1	.02	6.0	8	.13
15	68	66	71	4.7	2	.03	5.7	7	.10
16	277	228	374	4.7	4	.05	5.7	7	.10
17	19	5	.32	7.1	5	.10	240	250	598
18	10	2	.06	7.6	7	.13	20	20	1.3
19	8.6	2	.04	5.7	10	.13	18	17	1.0
20	7.7	2	.04	4.4	13	.15	12	12	.43
21	6.3	1	.03	5.3	14	.20	11	9	.27
22	6.2	1	.01	62	63	39	52	50	19
23	6.0	1	.01	13	12	.57	37	28	2.9
24	8.0	1	.03	7.3	6	.13	17	15	.79
25	6.1	1	.02	6.1	5	.09	12	8	.26
26	5.7	1	.02	5.5	5	.07	10	8	.22
27	5.7	1	.02	91	87	70	9.2	8	.22
28	5.4	1	.02	21	21	1.6	32	29	5.1
29	5.1	1	.02	9.2	10	.25	69	67	23
30	8.0	1	.02	7.4	11	.21	22	21	1.3
31	6.0	3	.06	6.5	11	.21	---	---	---
TOTAL	656.1	---	526.87	334.0	---	113.24	663.4	---	657.38
YEAR	6606.3		2698.80						

## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	16	15	.65	8.2	12	.28	18	15	.77
2	37	112	16	8.1	12	.27	17	11	.47
3	17	15	.68	8.4	10	.22	21	10	.55
4	15	9	.38	8.4	9	.21	23	9	.60
5	13	4	.12	8.6	10	.23	18	8	.38
6	11	12	.36	8.2	10	.24	16	7	.31
7	11	24	.67	133	206	160	15	9	.36
8	10	30	.80	227	334	416	15	9	.35
9	13	21	.74	111	143	65	14	6	.23
10	11	11	.31	52	25	5.8	14	4	.17
11	9.7	10	.25	25	5	.39	13	5	.20
12	14	20	1.1	e21	5	e.26	14	7	.28
13	9.7	6	.17	18	5	.23	13	8	.30
14	9.4	3	.07	16	5	.22	13	10	.35
15	8.8	2	.04	14	5	.20	e13	10	e.38
16	8.9	2	.05	21	47	5.2	15	10	.43
17	9.5	2	.04	17	16	.74	13	10	.37
18	9.2	1	.03	15	12	.45	13	10	.34
19	8.5	1	.02	14	7	.28	13	10	.34
20	8.0	1	.02	13	5	.18	24	24	3.0
21	8.1	2	.04	20	14	2.1	18	15	.88
22	8.4	3	.06	37	36	5.5	14	5	.20
23	8.3	4	.08	20	10	.54	13	2	.06
24	7.9	7	.16	127	174	134	13	3	.12
25	8.0	11	.23	32	40	3.6	13	4	.15
26	7.9	12	.24	22	24	1.5	12	3	.10
27	7.3	12	.23	47	63	8.4	12	5	.17
28	7.3	11	.22	38	46	4.8	12	10	.30
29	7.3	10	.19	27	35	2.5	12	11	.34
30	7.3	10	.19	21	25	1.5	13	12	.39
31	7.3	11	.21	---	---	---	14	12	.47
TOTAL	334.8	---	24.35	1137.9	---	820.84	461	---	13.36

e Estimated

## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	13	13	.47	14	7	.30	10	4	.12
2	12	13	.43	14	10	.40	11	4	.11
3	12	12	.40	14	11	.41	10	2	.08
4	12	13	.39	15	11	.42	10	3	.11
5	605	955	4920	13	10	.38	10	5	.15
6	328	854	1010	29	30	3.4	11	7	.20
7	31	34	4.0	23	21	1.5	10	7	.21
8	13	14	.50	18	11	.52	10	5	.16
9	8.8	13	.33	16	10	.43	9.0	4	.11
10	11	16	.49	21	5	.31	9.0	7	.17
11	8.6	18	.43	17	4	.19	8.6	12	.26
12	9.7	20	.53	15	4	.17	8.4	16	.37
13	12	21	.72	13	4	.15	8.6	20	.45
14	14	23	.84	14	3	.13	9.3	21	.55
15	18	21	.99	15	5	.21	9.9	24	.60
16	43	56	20	12	6	.23	8.6	23	.52
17	47	38	10	12	7	.24	19	28	1.8
18	27	10	.71	11	8	.25	11	26	.79
19	24	16	1.0	12	7	.22	9.0	21	.51
20	22	20	1.2	11	5	.16	8.6	20	.46
21	21	18	.99	11	5	.14	8.6	15	.34
22	19	14	.71	12	5	.17	8.5	7	.17
23	19	6	.34	12	5	.18	7.5	6	.13
24	19	5	.26	12	6	.22	7.5	9	.18
25	20	5	.24	12	7	.23	7.3	11	.20
26	19	4	.20	16	8	.39	6.8	13	.24
27	17	4	.18	12	8	.28	6.8	16	.28
28	20	17	1.1	11	7	.22	6.6	15	.26
29	17	7	.33	11	6	.17	6.2	14	.23
30	16	3	.12	---	---	---	6.2	12	.19
31	15	4	.16	---	---	---	7.0	10	.18
TOTAL	1473.1	---	5978.06	418	---	12.02	280.0	---	10.13



## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	7.3	10	.22	15	31	5.4	65	93	70
2	6.3	10	.16	37	93	16	29	124	9.8
3	5.9	10	.15	8.3	11	.27	24	26	2.2
4	5.7	9	.14	6.2	6	.11	68	95	46
5	5.5	10	.14	5.9	6	.09	26	24	1.8
6	5.8	10	.15	11	9	.28	22	17	1.1
7	9.8	11	.27	10	13	.35	29	33	5.1
8	8.0	11	.26	7.2	18	.35	40	47	6.8
9	6.9	13	.24	6.2	26	.43	27	27	2.1
10	6.7	13	.23	6.2	30	.49	114	166	74
11	8.2	15	.36	7.0	27	.51	e125	197	e99
12	34	38	4.6	7.7	21	.45	149	294	136
13	13	26	.97	7.9	18	.40	e101	144	e61
14	15	22	.86	6.3	17	.27	e69	89	e19
15	10	13	.39	9.0	12	.29	44	50	6.3
16	7.5	8	.17	88	166	177	36	36	3.7
17	6.8	10	.17	16	36	1.7	82	109	66
18	6.9	16	.29	10	39	.98	37	31	3.2
19	24	43	11	8.3	40	.89	26	24	1.6
20	18	24	1.8	24	53	7.6	24	22	1.4
21	7.7	13	.26	11	32	1.1	137	245	346
22	7.0	8	.15	8.6	22	.50	37	23	2.7
23	6.3	5	.09	150	247	417	28	10	.74
24	5.9	4	.07	151	211	144	23	8	.50
25	5.7	4	.06	49	55	8.8	20	7	.41
26	5.4	4	.07	134	202	173	19	7	.37
27	5.4	7	.11	40	130	15	18	7	.34
28	5.4	10	.14	19	23	1.4	16	7	.31
29	5.1	13	.17	14	10	.36	15	7	.28
30	5.6	18	.26	40	49	18	16	7	.29
31	---	---	---	15	14	.61	---	---	---
TOTAL	270.8	---	23.95	928.8	---	993.63	1466	---	968.04

e Estimated

## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	14	6	.23	11	10	.30	9.9	8	.22
2	14	5	.20	13	9	.33	10	9	.25
3	14	5	.18	14	18	.73	17	11	.52
4	13	5	.17	14	14	.56	11	13	.38
5	15	6	.24	183	317	613	9.3	15	.39
6	12	12	.37	62	80	22	11	16	.48
7	11	17	.51	28	16	1.2	11	13	.42
8	16	21	.95	22	11	.66	11	12	.98
9	14	19	.71	18	10	.49	43	51	13
10	12	18	.56	22	8	.44	12	11	.34
11	20	40	2.8	20	7	.43	9.6	9	.23
12	13	43	1.6	21	9	.52	8.7	7	.18
13	11	35	1.1	17	8	.39	8.2	8	.18
14	11	28	.85	24	22	2.1	7.9	10	.20
15	11	21	.65	19	25	1.3	7.5	11	.21
16	12	13	.43	16	24	1.0	34	43	15
17	34	43	12	15	19	.80	27	31	3.4
18	12	10	.35	12	13	.40	17	15	.67
19	17	22	1.2	12	8	.25	87	391	164
20	19	45	2.3	12	5	.17	205	326	815
21	13	35	1.2	11	4	.12	147	191	221
22	34	47	11	10	3	.09	33	6	.60
23	16	12	.48	10	3	.08	21	5	.28
24	12	10	.33	11	3	.09	17	3	.16
25	39	47	11	10	3	.08	14	4	.15
26	16	10	.40	16	12	.94	13	5	.18
27	13	10	.35	13	10	.35	11	8	.27
28	12	10	.29	11	7	.20	10	10	.27
29	11	10	.31	11	6	.18	9.5	10	.25
30	12	12	.37	9.8	8	.20	9.4	10	.26
31	11	12	.36	12	9	.29	---	---	---
TOTAL	484	---	53.49	679.8	---	649.69	842.0	---	1239.47
YEAR	8776.2		10787.03						

## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

WATER QUALITY DATA, WATER YEARS DECEMBER 1990 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
DEC 1990							
14...	1330	95	1930	495	55	65	69
JAN 1992							
05...	1656	1350	13600	49600	29	44	57

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
DEC 1990							
14...	78	84	98	99	99.4	99.8	100
JAN 1992							
05...	75	78	83	90	94	97	99

## RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
02...	1015	49	193	25	98
JAN 1992					
05...	1711	2340	4830	30600	82
16...	1648	29	168	13	98
MAY					
14...	1520	14	540	20	96
JUN					
03...	1445	49	395	52	99
AUG					
04...	1200	12	4080	132	100
SEP					
19...	2056	96	1540	399	98

LOCATION.--Lat 18°14'33", long 66°00'34", Hydrologic Unit 21010005, on right bank 250 ft (76 m) upstream from bridge on Highway 189, 1.2 mi (1.9 km) downstream from Río Turabo, and 1.8 mi (2.9 km) east of Plaza de Caguas.

## WATER-DISCHARGE RECORDS

GAGE.--Water-stage recorder. Datum of gage is 143.28 ft (43.672 m) above mean sea level.

REMARKS.--Records good. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	304	68	157	106	91	56	52	42	521	89	66	87
2	466	80	152	78	87	53	53	174	479	81	66	72
3	301	72	154	72	89	57	38	60	177	78	76	104
4	195	63	216	68	96	55	36	41	922	77	63	93
5	174	101	151	7930	92	60	36	35	265	146	1610	80
6	166	118	126	4920	108	62	33	64	196	84	644	89
7	113	1130	115	609	143	58	42	117	184	74	233	89
8	99	4110	109	311	100	109	45	62	207	84	159	73
9	98	1640	113	246	86	59	39	47	221	98	123	280
10	102	696	105	282	121	51	37	41	436	77	243	103
11	88	292	96	198	97	48	39	40	442	141	150	78
12	126	219	99	171	82	45	72	64	1070	108	171	70
13	107	194	95	164	76	47	108	49	689	76	122	63
14	86	160	94	144	76	47	60	39	522	69	130	61
15	87	136	83	135	90	65	81	71	264	76	161	60
16	83	145	94	149	84	48	49	1090	263	82	111	99
17	100	159	93	219	71	50	42	214	400	222	104	284
18	82	119	78	132	68	82	41	106	259	100	99	165
19	79	105	75	119	66	56	59	74	169	93	91	746
20	66	98	90	115	65	60	145	146	147	146	91	2870
21	63	112	174	110	62	55	75	101	1020	106	88	1660
22	102	454	83	110	60	54	48	63	234	364	80	335
23	77	186	77	106	68	48	47	1400	179	118	81	207
24	65	641	73	110	69	44	38	2020	144	89	113	161
25	58	329	71	109	68	41	35	333	127	171	85	135
26	52	187	69	113	64	41	35	2740	116	105	73	121
27	51	423	68	101	70	40	32	399	113	82	89	113
28	49	313	68	100	64	39	30	202	110	75	77	103
29	181	272	74	103	58	49	31	144	97	66	85	102
30	241	191	68	93	---	40	35	249	93	62	73	102
31	104	---	96	91	---	38	---	146	---	66	95	---
TOTAL	3965	12813	3216	17314	2371	1657	1513	10373	10066	3305	5452	8605
MEAN	128	427	104	559	81.8	53.5	50.4	335	336	107	176	287
MAX	466	4110	216	7930	143	109	145	2740	1070	364	1610	2870
MIN	49	63	68	68	58	38	30	35	93	62	63	60
AC-FT	7860	25410	6380	34340	4700	3290	3000	20570	19970	6560	10810	17070
CFSM	1.42	4.76	1.16	6.22	.91	.60	.56	3.73	3.74	1.19	1.96	3.19
IN.	1.64	5.31	1.33	7.17	.98	.69	.63	4.30	4.17	1.37	2.26	3.55

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1992, BY WATER YEAR (WY)

MEAN	388	316	233	148	111	91.2	84.7	254	260	223	259	259
MAX	1910	1131	714	559	291	306	226	863	1283	660	949	764
(WY)	1971	1988	1988	1992	1984	1989	1985	1985	1979	1961	1979	1979
MIN	44.2	64.9	33.6	45.3	35.6	23.2	38.0	33.7	34.1	21.8	53.6	37.4
(WY)	1968	1968	1968	1968	1968	1968	1968	1974	1975	1974	1967	1967

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1960 - 1992
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ANNUAL TOTAL	48124		80650				
ANNUAL MEAN	132		220		220		
HIGHEST ANNUAL MEAN					526		1979
LOWEST ANNUAL MEAN					82.3		1967
HIGHEST DAILY MEAN	4110	Nov 8	7930	Jan 5	17900		Oct 9 1970
LOWEST DAILY MEAN	20	Aug 13	30	Apr 28	11		Apr 8 1968
ANNUAL SEVEN-DAY MINIMUM	22	Apr 28	34	Apr 24	11		Apr 8 1968
INSTANTANEOUS PEAK FLOW			43300	Jan 5	71500		Sep 6 1960
INSTANTANEOUS PEAK STAGE			24.32	Jan 5	31.17		Sep 6 1960
INSTANTANEOUS LOW FLOW			28	Apr 27			
ANNUAL RUNOFF (AC-FT)	95450		160000		159100		
ANNUAL RUNOFF (CFSM)	1.47		2.45		2.45		
ANNUAL RUNOFF (INCHES)	19.94		33.41		33.22		
10 PERCENT EXCEEDS	218		312		365		
50 PERCENT EXCEEDS	72		95		106		
90 PERCENT EXCEEDS	29		48		40		

## RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1983 to September 1989.

INSTRUMENTATION.-- USD-49 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 14,500 mg/L Nov 27, 1987; Minimum daily mean, 8 mg/L January 23, 1992.

SEDIMENT LOADS: Maximum daily mean, 227,000 tons (205,890 tonnes) Nov 27, 1987; Minimum daily mean, 1.3 tons (1.2) July 14, 1985.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,790 mg/L January 05, 1992 ; minimum daily mean, 8 mg/L January 23, 1992.

SEDIMENT LOADS: Maximum daily mean, 199,000 tons (180,000 tonnes) January 05, 1992; minimum daily 1.9 ton (1.7 tonnes) several days.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991											
18...	1215	80	242	7.8	28.5	28	7.6	96	16	20000	440
DEC											
05...	1445	145	219	7.6	24.0	170	7.8	97	19	20000	630
FEB 1992											
27...	1240	71	262	7.3	26.5	45	7.7	93	14	5400	380
MAY											
18...	1155	102	200	7.4	27.5	31	7.1	89	25	25000	3000
JUN											
11...	0815	702	144	7.1	25.5	170	8.0	99	23	K4800	23000
AUG											
19...	1125	84	228	7.4	29.5	7.8	7.3	90	<10	K1700	400

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 1991										
18...	71	18	6.4	23	1	2.0	75	<0.5	9.6	19
DEC										
05...	--	--	--	--	--	--	66	--	--	--
FEB 1992										
27...	--	--	--	--	--	--	84	--	--	--
MAY										
18...	56	15	4.5	15	0.9	2.5	90	<0.5	14	18
JUN										
11...	--	--	--	--	--	--	40	--	--	--
AUG										
19...	66	17	5.7	19	1	1.9	74	--	10	17

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE (MG/L AS N)	NITRO- GEN, NITRITE (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
18...	0.10	35	158	34.1	18	0.370	0.050	0.420	0.090	0.51
DEC										
05...	--	--	--	--	495	0.480	0.070	0.550	0.070	0.23
FEB 1992										
27...	--	--	--	--	51	0.350	0.050	0.400	0.110	0.19
MAY										
18...	0.10	22	122	33.5	12	0.550	0.030	0.580	0.140	0.46
JUN										
11...	--	--	--	--	219	0.350	0.070	0.420	0.050	0.35
AUG										
19...	<0.10	29	144	32.7	11	0.250	0.020	0.270	0.060	0.14

K = non-ideal count

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

## RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	304	255	236	68	122	23	157	56	24
2	466	390	596	80	82	19	152	25	10
3	301	123	111	72	62	14	154	50	25
4	195	35	19	63	55	9.8	216	208	122
5	174	71	36	101	97	29	151	244	100
6	166	133	62	118	99	45	126	179	63
7	113	94	29	1130	1390	6250	115	104	33
8	99	82	22	4110	2080	40000	109	64	19
9	98	76	20	1640	1250	9130	113	45	14
10	102	70	19	696	591	1510	105	40	11
11	88	64	16	292	222	179	96	40	10
12	126	99	40	219	131	79	99	60	16
13	107	84	25	194	84	45	95	68	18
14	86	49	12	160	46	21	94	48	11
15	87	51	12	136	28	10	83	36	8.3
16	83	75	17	145	45	22	94	29	7.1
17	100	84	23	159	107	50	93	23	5.8
18	82	64	14	119	38	12	78	21	4.5
19	79	69	15	105	23	6.6	75	20	4.1
20	66	77	13	98	21	5.4	90	60	17
21	63	75	13	112	67	25	174	145	80
22	102	101	44	454	385	577	83	44	10
23	77	183	38	186	159	82	77	19	4.0
24	65	171	29	641	573	1490	73	17	3.3
25	58	150	23	329	211	219	71	14	2.6
26	52	130	18	187	135	70	69	11	2.1
27	51	103	14	423	336	469	68	10	1.9
28	49	83	11	313	176	163	68	10	1.9
29	181	198	207	272	214	164	74	10	2.0
30	241	204	249	191	122	65	68	11	2.1
31	104	156	48	---	---	---	96	60	16
TOTAL	3965	---	2031	12813	---	60783.8	3216	---	648.7



## RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	106	62	20	91	16	3.8	56	60	9.0
2	78	28	5.9	87	17	4.0	53	58	8.2
3	72	25	4.7	89	28	6.6	57	56	8.5
4	68	22	3.9	96	35	9.2	55	55	8.4
5	7930	2790	199000	92	31	7.6	60	55	9.1
6	4920	2620	44000	108	88	30	62	55	9.5
7	609	242	522	143	114	46	58	52	8.2
8	311	57	48	100	79	21	109	120	39
9	246	76	53	86	76	18	59	92	15
10	282	147	110	121	104	35	51	75	10
11	198	109	60	97	53	14	48	57	7.2
12	171	65	30	82	45	10	45	40	4.9
13	164	22	9.4	76	41	8.4	47	37	4.5
14	144	17	6.4	76	40	8.5	47	40	5.1
15	135	18	6.8	90	63	15	65	47	7.8
16	149	18	11	84	105	23	48	53	6.6
17	219	17	9.7	71	138	27	50	60	8.3
18	132	15	5.4	68	153	28	82	68	15
19	119	15	4.9	66	158	28	56	59	8.9
20	115	14	4.2	65	160	28	60	50	8.0
21	110	11	3.3	62	158	26	55	47	7.0
22	110	9	2.7	60	153	25	54	45	6.4
23	106	8	2.3	68	146	26	48	42	5.5
24	110	9	2.7	69	137	26	44	39	4.5
25	109	10	3.0	68	127	23	41	41	4.5
26	113	12	3.4	64	117	21	41	41	4.5
27	101	12	3.3	70	105	19	40	39	4.2
28	100	12	3.4	64	86	15	39	33	3.5
29	103	14	3.9	58	69	11	49	27	3.6
30	93	15	3.8	---	---	---	40	26	2.8
31	91	15	3.7	---	---	---	38	26	2.6
TOTAL	17314	---	243950.8	2371	---	563.1	1657	---	250.3

## RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	52	54	8.0	42	69	8.3	521	349	1790
2	53	91	13	174	160	88	479	788	1430
3	38	104	11	60	94	16	177	122	63
4	36	101	9.8	41	79	9.0	922	665	3830
5	36	99	9.3	35	71	6.7	265	40	29
6	33	95	8.4	64	86	22	196	40	21
7	42	78	8.4	117	137	47	184	82	45
8	45	59	7.2	62	110	18	207	131	83
9	39	46	4.8	47	91	12	221	169	104
10	37	39	3.9	41	72	8.2	436	361	566
11	39	39	4.2	40	61	6.8	442	348	465
12	72	78	17	64	69	12	1070	961	4290
13	108	100	30	49	79	11	689	570	1220
14	60	74	12	39	74	7.6	522	421	644
15	81	88	19	71	65	13	264	114	87
16	49	93	12	1090	2190	15200	263	183	141
17	42	99	12	214	998	761	400	406	608
18	41	101	11	106	82	25	259	348	243
19	59	105	17	74	70	14	169	170	81
20	145	201	87	146	170	148	147	117	47
21	75	151	33	101	298	88	1020	1470	6150
22	48	113	15	63	240	41	234	108	75
23	47	109	14	1400	834	8620	179	58	27
24	38	105	10	2020	695	7420	144	50	19
25	35	101	9.3	333	101	112	127	52	17
26	35	99	9.4	2740	1420	21400	116	69	21
27	32	96	8.1	399	246	293	113	80	24
28	30	92	7.1	202	80	49	110	111	33
29	31	85	7.2	144	40	16	97	136	36
30	35	75	6.8	249	168	235	93	168	41
31	---	---	---	146	93	41	---	---	---
TOTAL	1513	---	424.9	10373	---	54748.6	10066	---	22230

## RIO GRANDE DE LOIZA BASIN

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50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	89	203	47	66	23	4.0	87	40	10
2	81	190	41	66	21	3.8	72	46	9.0
3	78	137	28	76	19	4.0	104	84	25
4	77	87	18	63	19	3.3	93	80	21
5	146	118	51	1610	1520	11800	80	67	15
6	84	61	15	644	917	2280	89	74	19
7	74	39	7.8	233	213	148	89	72	17
8	84	48	13	159	130	58	73	64	13
9	98	46	13	123	100	34	280	274	267
10	77	24	4.9	243	317	235	103	65	20
11	141	108	58	150	130	54	78	50	10
12	108	95	31	171	183	92	70	58	11
13	76	55	12	122	56	19	63	54	9.4
14	69	56	10	130	100	44	61	51	8.3
15	76	89	19	161	140	67	60	53	8.6
16	82	170	38	111	76	23	99	117	36
17	222	231	179	104	43	12	284	247	262
18	100	92	25	99	19	5.2	165	131	60
19	93	87	22	91	15	3.7	746	661	2490
20	146	112	45	91	17	4.1	2870	1450	28400
21	106	93	27	88	19	4.5	1660	1310	9040
22	364	386	598	80	20	4.4	335	338	304
23	118	266	89	81	20	4.4	207	286	167
24	89	145	36	113	84	28	161	166	76
25	171	143	86	85	66	15	135	83	30
26	105	75	24	73	62	13	121	33	11
27	82	33	7.3	89	66	16	113	13	3.9
28	75	23	4.6	77	53	11	103	18	4.9
29	66	21	3.7	85	68	16	102	24	6.7
30	62	25	4.1	73	61	12	102	33	8.8
31	66	27	4.6	95	77	21	---	---	---
TOTAL	3305	---	1562.0	5452	---	15039.4	8605	---	41363.6
YEAR	80650		443596.2						

## RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
NOV 1991							
07...	0923	3460	3010	28100	29	38	50
08...	1000	3210	4310	37300	16	25	36
24...	1358	1260	18500	62800	4	15	23
JAN 1992							
05...	2039	40600	9250	1010000	21	30	39
MAY							
16...	1355	1580	17500	74800	5	9	14
23...	2313	9720	3150	82700	33	41	47
26...	0337	14400	4800	186000	27	33	43

## RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE PERCENT DIAM. FINER THAN .062 MM
NOV 1991					
07...	0733	1320	6340	22600	94
07...	1323	1620	1220	5360	98
08...	0620	2000	1360	7330	95
08...	0855	3670	3260	32300	93
08...	1140	2370	4560	29200	87
08...	1255	1870	507	2560	96
24...	1553	1250	593	2010	97
JAN 1992					
05...	1654	2520	7500	51100	99
05...	1924	34100	5230	402000	94
MAR					
03...	1108	50	54	7.3	94
APR					
21...	0900	162	162	71	98
MAY					
16...	1445	6720	9240	168000	96
16...	1805	1800	4600	22300	97
21...	0904	99	307	82	96
23...	2023	1642	3840	17000	85
23...	2243	12600	3020	102300	96
26...	1242	1050	491	1390	98
JUN					
01...	2052	1380	2080	7770	73
02...	0012	1530	1900	7850	95
21...	0607	1480	1630	6500	73
21...	0812	3450	3060	28600	96
21...	1037	1540	3850	16100	92
JUL					
20...	0610	138	231	86	99
23...	0813	120	287	93	99
AUG					
05...	0935	1520	2060	8470	95
10...	0800	317	633	542	99
SEP					
19...	1100	191	288	148	98
19...	1841	2527	1000	6860	93
19...	2134	1433	1693	6550	97

## RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR

LOCATION.--Lat 18°14'48", long 66°05'37", Hydrologic Unit 21010005, on right bank 450 ft (137 m) upstream from bridge on Highway 777, 1.0 mi (1.6 km) southeast from Aguas Buenas, 3.9 mi (6.3 km) northwest from Caguas, and 2.1 mi (3.4 km) southwest from Las Carolinas.

DRAINAGE AREA.--5.30 mi<sup>2</sup> (13.72 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 394 ft (120 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	5.2	5.1	4.9	4.1	3.8	2.9	3.0	4.1	3.4	3.2	3.3
2	11	5.3	5.0	4.8	4.1	3.8	3.0	3.6	4.1	3.3	3.4	3.2
3	6.6	4.4	7.4	4.9	4.3	3.8	3.0	2.8	4.0	3.4	3.8	e3.9
4	5.2	4.4	9.4	4.9	4.3	3.7	2.9	2.6	4.3	3.4	6.1	e3.5
5	5.6	5.2	6.2	235	4.3	3.6	2.9	2.6	3.9	3.9	77	e6.3
6	5.0	5.6	5.6	116	4.3	3.6	3.0	2.9	3.7	3.4	13	e4.4
7	5.5	16	5.3	14	4.2	3.6	3.4	2.9	4.7	3.4	5.7	e3.9
8	5.3	42	5.1	7.8	4.2	3.5	3.1	2.6	4.4	4.0	4.5	e3.9
9	4.8	15	5.0	7.1	4.3	3.4	2.9	2.5	3.9	e3.6	4.0	e7.6
10	4.8	7.3	5.0	9.2	5.4	3.5	2.8	2.4	4.3	3.4	3.6	e3.5
11	4.7	6.0	4.9	6.0	4.5	3.5	2.9	2.5	4.4	4.2	3.7	3.4
12	4.6	5.5	5.1	5.4	4.3	3.3	3.1	3.5	6.2	3.3	3.8	3.2
13	4.5	5.3	5.4	5.4	4.3	3.3	2.8	3.1	5.6	e3.1	3.5	3.1
14	4.5	5.1	6.5	5.0	4.3	3.4	2.7	2.7	4.4	e3.1	3.6	4.0
15	4.7	4.9	5.0	4.8	4.2	3.6	2.7	2.7	4.0	e3.5	3.4	3.6
16	4.4	4.9	5.0	11	4.4	3.3	2.7	3.6	4.4	e5.0	3.2	6.1
17	4.4	4.9	5.0	8.7	4.3	4.3	2.9	5.1	4.0	e7.0	3.1	4.1
18	4.2	4.7	4.9	5.3	4.3	3.7	2.9	3.7	3.8	e4.5	3.0	4.6
19	4.3	4.7	4.8	4.8	4.3	3.5	11	4.6	3.7	e3.8	2.9	41
20	4.2	4.8	8.7	4.7	4.1	3.4	5.1	5.1	3.6	e3.6	2.9	31
21	4.1	9.7	7.7	4.6	4.0	3.2	3.1	7.4	5.0	e5.0	2.9	14
22	9.9	10	5.6	4.6	4.1	3.3	3.0	5.0	3.7	e7.0	2.9	19
23	5.0	5.6	5.3	4.5	4.1	3.1	2.8	36	3.5	e4.3	3.0	e11
24	4.4	6.4	5.2	4.5	4.2	2.9	2.7	34	3.4	e5.0	3.1	e6.4
25	4.1	5.3	5.1	4.6	4.2	2.9	2.6	18	3.4	e6.2	3.0	5.3
26	4.1	5.0	5.0	4.6	4.1	2.9	2.6	9.6	3.3	e4.8	3.0	4.9
27	4.1	5.3	5.0	4.4	4.0	2.9	2.6	6.5	3.4	e4.8	3.5	4.7
28	4.1	5.0	5.0	4.4	4.0	9.1	2.6	5.2	3.6	e3.4	3.2	4.6
29	4.1	4.9	5.0	4.4	3.8	3.7	2.5	4.7	3.6	3.0	3.4	4.5
30	10	5.4	5.0	4.4	---	3.1	2.6	4.5	3.3	3.1	3.9	4.8
31	5.3	---	5.0	4.1	---	2.9	---	4.3	---	3.1	4.3	---
TOTAL	164.2	223.8	173.3	518.8	123.0	111.6	95.8	199.7	121.7	126.0	193.6	226.8
MEAN	5.30	7.46	5.59	16.7	4.24	3.60	3.19	6.44	4.06	4.06	6.25	7.56
MAX	11	42	9.4	235	5.4	9.1	11	36	6.2	7.0	77	41
MIN	4.1	4.4	4.8	4.1	3.8	2.9	2.5	2.4	3.3	3.0	2.9	3.1
AC-FT	326	444	344	1030	244	221	190	396	241	250	384	450
CFSM	1.00	1.41	1.05	3.16	.80	.68	.60	1.22	.77	.77	1.18	1.43
IN.	1.15	1.57	1.22	3.64	.86	.78	.67	1.40	.85	.88	1.36	1.59

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1992, BY WATER YEAR (WY)

	1990	1991	1992	1990	1991	1992	1990	1991	1992	1990	1991	1992
MEAN	13.1	6.61	7.44	12.0	5.24	6.29	4.17	4.56	3.79	5.21	5.68	6.01
MAX	20.9	7.46	9.28	16.7	8.00	8.87	5.64	6.41	4.06	7.29	6.28	7.95
(WY)	1991	1992	1991	1992	1991	1990	1991	1992	1992	1991	1992	1992
MIN	5.30	5.76	5.59	7.19	3.51	3.60	3.19	2.48	3.40	3.74	5.14	5.01
(WY)	1992	1991	1992	1991	1990	1992	1992	1990	1991	1990	1991	1991

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1990 - 1992

ANNUAL TOTAL	2161.0		2278.3									
ANNUAL MEAN	5.92		6.22							6.86		
HIGHEST ANNUAL MEAN										7.42		1991
LOWEST ANNUAL MEAN										6.30		1992
HIGHEST DAILY MEAN	82	Jul 16	235	Jan 5	235	Jan 5	1992					
LOWEST DAILY MEAN	2.8	Jun 18	2.4	May 10	1.8	May 7	1990					
ANNUAL SEVEN-DAY MINIMUM	2.8	Jun 16	2.6	Apr 24	1.9	May 22	1990					
INSTANTANEOUS PEAK FLOW			1850	Aug 5	1460	Oct 15	1990					
INSTANTANEOUS PEAK STAGE			21.20	Aug 5	15.24	Oct 15	1990					
INSTANTANEOUS LOW FLOW			2.4	May 9	1.8	May 3	1990					
ANNUAL RUNOFF (AC-FT)	4290		4520		4970							
ANNUAL RUNOFF (CFSM)	1.12		1.17		1.29							
ANNUAL RUNOFF (INCHES)	15.17		15.99		17.59							
10 PERCENT EXCEEDS	7.4		7.0		7.8							
50 PERCENT EXCEEDS	5.2		4.3		4.4							

## RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February 1990 to September 1992

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,370 mg/L Jan. 05, 1992; Minimum daily mean, 2 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 3,730 tons (3,360 tonnes) Jan. 05, 1992; Minimum daily mean, 0.02 ton (0.03 tonne) Several days.

EXTREMES FOR WATER YEARS 1990-92.--

Water Year	Suspended-sediment concentration (mg/L)		Suspended-sediment discharge (tons per day)	
	maximum	minimum	maximum	minimum
1990	326 (Sep. 03)	4 (May, 18)	297 (Jul. 13)	.02 (May, 18)
1991	782 (Jul. 16)	2 (Nov. 4-5)	1,020 (Oct. 15)	.04 (Nov. 4-5)
1992	1,370 (Jan. 05)	2 (Several days)	3,730 (Jan. 05)	.02 (Several days)

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	JANUARY			FEBRUARY			MARCH		
1	---	---	---	e3.6	---	---	3.7	13	.13
2	---	---	---	e4.2	---	---	3.3	12	.10
3	---	---	---	e4.0	---	---	3.0	11	.08
4	---	---	---	e3.4	---	---	3.0	11	.08
5	---	---	---	e3.0	---	---	2.9	11	.08
6	---	---	---	e2.7	---	---	2.9	11	.08
7	---	---	---	e2.6	---	---	2.9	11	.08
8	---	---	---	e3.0	---	---	2.8	10	.08
9	---	---	---	e3.5	13	e5.0	13	62	4.3
10	---	---	---	e5.0	19	e.26	6.3	27	.52
11	---	---	---	e4.0	16	e.18	5.3	22	.36
12	---	---	---	e3.6	12	e.12	19	88	5.5
13	---	---	---	2.9	11	.08	39	201	24
14	---	---	---	4.8	19	.29	50	258	54
15	---	---	---	3.2	13	.11	13	55	2.1
16	---	---	---	3.0	11	.08	16	76	5.1
17	---	---	---	3.4	13	.12	12	55	2.0
18	---	---	---	3.7	15	.16	8.0	34	.75
19	---	---	---	3.4	12	.12	6.5	26	.45
20	---	---	---	3.1	12	.10	5.9	23	.34
21	---	---	---	3.7	14	.14	5.3	20	.28
22	---	---	---	4.3	16	.18	5.1	19	.26
23	---	---	---	3.7	16	.17	5.2	19	.26
24	---	---	---	3.7	14	.14	4.8	18	.24
25	---	---	---	3.4	12	.12	4.6	17	.22
26	---	---	---	3.4	13	.12	4.5	17	.22
27	---	---	---	3.0	12	.10	4.4	17	.23
28	---	---	---	3.0	11	.08	4.4	19	.22
29	---	---	---	---	---	---	4.7	19	.24
30	---	---	---	---	---	---	4.9	19	.26
31	---	---	---	---	---	---	4.5	18	.23
TOTAL	---	---	---	98.3	---	---	270.9	---	102.79

e Estimated

## RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	4.2	17	.19	2.1	7	.04	2.7	9	.06
2	3.9	16	.17	2.1	7	.04	2.9	9	.08
3	3.9	15	.15	2.0	7	.04	2.8	9	.06
4	3.7	14	.14	2.0	7	.04	2.8	10	.07
5	3.7	14	.14	2.0	7	.04	3.1	11	.09
6	3.6	14	.14	1.9	7	.04	2.9	10	.07
7	3.6	14	.14	1.8	7	.04	4.1	16	.26
8	3.5	14	.13	1.8	7	.04	3.4	11	.11
9	3.8	14	.15	6.6	30	1.3	2.8	8	.07
10	3.9	15	.17	4.9	17	.21	2.3	7	.04
11	3.4	13	.12	4.0	11	.12	2.3	7	.04
12	3.2	13	.11	2.7	10	.08	2.3	7	.04
13	5.5	22	.45	2.8	11	.09	2.3	7	.04
14	4.2	16	.19	3.0	11	.09	4.2	39	.43
15	3.6	12	.11	2.7	10	.08	12	52	1.8
16	3.4	11	.10	2.5	8	.06	6.0	23	.37
17	3.2	11	.10	2.1	7	.04	4.8	17	.21
18	3.0	11	.09	2.1	4	.02	4.4	15	.17
19	4.6	17	.24	2.1	7	.04	4.3	14	.16
20	3.8	13	.14	2.0	7	.04	4.1	13	.14
21	3.0	11	.09	1.9	7	.04	4.1	13	.14
22	2.5	10	.07	1.8	7	.04	4.1	13	.14
23	2.3	8	.05	1.8	7	.04	9.0	38	1.6
24	2.1	7	.04	1.9	7	.04	6.2	23	.37
25	9.7	44	4.4	2.0	7	.04	7.1	19	.36
26	5.4	22	.42	2.0	7	.04	5.5	18	.26
27	2.8	10	.07	2.0	7	.04	4.7	15	.19
28	2.4	8	.05	2.1	7	.04	4.5	14	.17
29	2.1	7	.04	2.1	7	.04	4.4	13	.16
30	2.1	7	.04	2.2	7	.04	4.1	13	.14
31	---	---	---	2.9	8	.07	---	---	---
TOTAL	110.1	---	8.44	75.9	---	2.96	130.2	---	7.84



RIO GRANDE DE LOIZA BASIN

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50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	4.1	14	.15	3.1	20	.17	2.7	6	.05
2	4.0	7	.08	18	85	9.0	4.7	17	.34
3	3.9	11	.12	7.1	27	.57	37	326	98
4	3.9	11	.12	4.4	15	.18	10	238	9.2
5	3.2	11	.10	5.4	34	.68	4.7	40	.51
6	6.1	23	.45	4.1	41	.44	4.6	40	.50
7	4.0	15	.16	4.4	40	.46	4.2	38	.46
8	3.7	12	.11	4.6	37	.46	3.9	37	.38
9	3.4	11	.10	3.6	34	.33	3.6	24	.23
10	3.2	11	.10	4.3	31	.36	3.5	15	.14
11	3.2	11	.10	3.8	28	.28	3.1	11	.09
12	3.2	11	.10	3.6	23	.21	3.0	11	.08
13	3.7	14	.14	44	270	297	3.0	12	.09
14	3.7	14	.14	10	55	1.8	3.3	11	.10
15	11	50	5.0	4.6	40	.50	3.4	11	.10
16	4.0	17	.19	3.9	38	.39	4.4	14	.19
17	6.9	29	.88	3.7	33	.35	3.7	18	.17
18	5.3	21	.36	3.9	30	.32	3.6	17	.15
19	3.6	13	.12	3.2	34	.29	3.5	14	.13
20	3.1	11	.09	2.9	39	.31	3.4	11	.10
21	2.6	10	.07	2.9	40	.32	3.2	10	.08
22	2.5	8	.05	3.1	35	.30	6.0	24	.78
23	2.3	7	.04	3.3	25	.22	4.6	19	.24
24	4.1	28	.83	3.0	15	.12	3.8	17	.18
25	3.9	82	1.0	3.4	10	.10	3.5	14	.12
26	2.8	45	.34	3.4	10	.09	3.5	12	.10
27	2.5	39	.25	2.9	10	.08	3.8	11	.12
28	2.2	36	.21	2.9	10	.08	3.4	11	.09
29	2.3	33	.20	2.9	10	.08	3.2	10	.08
30	2.5	28	.18	2.8	10	.08	4.5	18	.37
31	2.6	23	.16	2.7	7	.06	---	---	---
TOTAL	117.5	---	11.94	175.9	---	315.63	152.8	---	113.17

• Estimated

## RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	3.8	12	.15	7.3	16	.32	9.5	38	1.3
2	3.3	12	.11	7.0	8	.17	7.4	32	.83
3	3.8	13	.15	6.7	3	.07	29	152	19
4	4.1	15	.16	6.5	2	.04	9.7	42	1.3
5	3.6	14	.13	6.1	2	.04	6.2	24	.40
6	3.6	14	.13	6.0	4	.06	5.4	20	.29
7	11	74	8.9	5.9	5	.08	5.1	20	.26
8	4.2	83	.99	5.8	5	.08	4.9	19	.24
9	3.5	80	.82	5.5	4	.07	4.9	25	.32
10	11	103	4.7	5.4	5	.07	4.7	26	.34
11	5.8	110	1.8	5.2	6	.08	4.6	16	.20
12	4.2	110	1.3	5.2	6	.08	4.4	10	.12
13	5.5	94	1.5	5.1	7	.10	4.5	10	.12
14	6.6	78	1.3	5.0	9	.12	5.0	20	.26
15	100	590	1020	5.1	8	.12	6.2	27	.46
16	30	200	24	6.8	23	.51	5.2	23	.34
17	13	59	2.4	5.4	12	.17	4.7	20	.25
18	77	424	212	5.3	8	.12	4.6	25	.30
19	32	151	21	5.2	8	.11	4.5	37	.44
20	36	225	76	6.2	17	.42	4.4	47	.56
21	109	597	278	5.4	16	.24	4.4	48	.57
22	19	88	5.0	5.6	13	.19	4.5	43	.52
23	11	51	1.7	5.3	9	.14	4.6	38	.47
24	17	77	8.0	5.0	6	.09	4.6	30	.37
25	25	118	11	4.9	5	.06	4.4	19	.22
26	47	240	45	7.1	17	.35	4.4	9	.11
27	20	79	5.2	6.4	29	.61	6.1	18	.43
28	12	35	1.1	5.4	22	.32	5.4	22	.35
29	9.5	30	.76	5.0	20	.28	9.5	42	1.9
30	8.5	28	.63	6.1	29	.59	12	55	2.4
31	7.6	23	.48	---	---	---	93	499	186
TOTAL	647.6	---	1734.41	172.9	---	5.70	287.8	---	220.67

## RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	32	148	18	5.7	30	.48	5.6	18	.27
2	10	22	.63	5.6	29	.43	5.5	29	.43
3	7.8	18	.38	5.6	24	.35	5.5	37	.55
4	6.8	18	.33	5.3	16	.22	5.8	43	.67
5	7.4	28	.67	41	209	117	6.0	39	.62
6	10	48	2.0	14	67	3.4	6.1	29	.46
7	7.2	29	.58	7.7	59	1.2	5.8	21	.32
8	6.8	25	.44	6.0	40	.66	6.0	13	.20
9	7.3	25	.50	5.5	25	.37	5.8	10	.15
10	8.6	25	.65	5.3	20	.28	5.4	8	.12
11	7.4	28	.54	5.8	20	.29	5.5	8	.12
12	6.7	32	.56	15	74	8.6	5.5	10	.14
13	6.3	27	.45	9.8	59	1.8	5.5	12	.17
14	5.9	16	.25	6.6	33	.61	5.5	14	.20
15	5.9	11	.17	6.1	24	.39	5.5	14	.21
16	5.8	11	.17	5.8	21	.32	5.7	14	.22
17	5.7	12	.17	5.7	20	.30	5.7	14	.22
18	5.7	11	.16	6.3	23	.42	6.2	17	.28
19	5.7	9	.14	8.2	56	1.3	6.3	40	.71
20	5.6	8	.12	6.4	52	.92	5.9	30	.49
21	5.5	7	.10	6.1	48	.85	5.8	18	.27
22	5.5	6	.08	6.0	43	.69	23	213	23
23	5.3	5	.08	5.9	36	.57	8.2	46	1.3
24	5.3	4	.07	5.9	29	.45	6.7	20	.36
25	5.2	6	.09	5.8	20	.31	6.1	18	.30
26	5.2	8	.12	5.7	12	.18	5.8	13	.20
27	5.2	8	.12	5.6	7	.12	5.7	10	.15
28	5.2	9	.13	5.7	8	.13	5.6	14	.21
29	5.2	15	.21	---	---	---	5.5	17	.26
30	5.2	25	.35	---	---	---	5.5	17	.26
31	5.5	30	.47	---	---	---	5.4	16	.23
TOTAL	222.9	---	28.73	224.1	---	142.64	198.1	---	33.09

## RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	5.4	12	.17	7.7	24	.50	3.3	15	.14
2	5.5	9	.13	7.5	30	.60	3.2	15	.13
3	5.5	8	.12	6.2	24	.40	3.2	15	.12
4	5.5	7	.10	5.8	23	.35	3.2	14	.11
5	5.2	6	.08	5.7	21	.32	3.2	12	.10
6	5.2	6	.08	5.7	21	.32	3.6	11	.11
7	5.2	7	.10	7.3	27	.57	3.3	11	.10
8	6.6	9	.16	7.0	31	.67	3.2	10	.08
9	5.8	7	.11	4.1	17	.21	3.1	8	.06
10	5.6	6	.09	4.4	86	1.1	3.0	9	.07
11	5.8	8	.13	4.3	106	1.3	3.0	10	.08
12	6.3	10	.18	4.4	85	.95	3.1	10	.08
13	7.2	10	.20	3.6	61	.60	3.1	7	.06
14	5.9	10	.16	3.5	38	.35	3.0	6	.05
15	5.8	10	.16	3.4	32	.29	2.9	9	.07
16	5.9	10	.16	3.4	28	.26	2.9	8	.07
17	5.6	10	.15	3.4	23	.22	2.9	7	.06
18	5.5	10	.14	3.9	18	.21	2.8	10	.07
19	5.5	8	.13	6.5	28	.84	2.8	11	.08
20	5.5	6	.10	4.1	17	.20	2.8	11	.08
21	5.5	5	.08	3.7	16	.18	2.8	8	.06
22	5.4	5	.08	3.6	24	.23	2.8	6	.04
23	5.3	6	.08	3.4	21	.19	4.0	16	.21
24	5.3	8	.11	3.3	20	.18	3.5	19	.18
25	5.3	10	.14	11	52	3.1	3.3	16	.14
26	5.7	10	.15	4.1	24	.29	3.2	13	.11
27	5.3	10	.14	3.7	22	.23	3.3	11	.10
28	5.3	12	.17	3.5	22	.21	3.2	11	.10
29	5.5	14	.21	3.3	20	.18	3.3	11	.10
30	6.1	17	.27	3.3	13	.12	11	47	5.7
31	---	---	---	3.3	14	.13	---	---	---
TOTAL	169.2	---	4.08	148.1	---	15.30	102.0	---	8.46

## RIO GRANDE DE LOIZA BASIN

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50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	13	64	6.0	4.2	6	.06	4.1	12	.13
2	4.2	26	.30	4.0	7	.07	4.2	11	.12
3	3.4	21	.20	4.0	8	.08	4.1	10	.12
4	3.5	21	.19	4.1	8	.09	4.1	9	.10
5	3.3	20	.18	4.1	9	.10	4.0	9	.09
6	3.3	20	.18	4.3	9	.10	3.8	10	.10
7	3.8	34	.47	4.3	8	.10	3.9	10	.11
8	5.2	25	.58	4.3	7	.08	4.1	10	.10
9	4.1	20	.22	4.2	6	.07	4.3	8	.09
10	3.3	20	.18	4.4	8	.10	4.3	8	.08
11	3.3	19	.17	4.3	11	.13	4.2	8	.08
12	3.4	16	.14	4.4	14	.16	4.1	8	.08
13	3.3	14	.12	4.3	15	.18	4.1	8	.08
14	3.4	13	.12	4.4	15	.18	4.1	8	.08
15	9.7	45	4.2	4.4	15	.18	3.9	8	.08
16	82	782	477	4.7	15	.19	3.9	8	.08
17	8.1	183	4.5	4.9	16	.23	17	73	9.2
18	6.2	43	.74	5.0	16	.23	5.4	22	.35
19	5.7	26	.42	4.8	14	.18	5.5	60	.88
20	5.3	20	.30	4.8	11	.15	4.5	18	.22
21	4.9	15	.19	5.2	10	.14	4.3	16	.19
22	4.7	10	.13	8.3	36	1.4	5.2	16	.24
23	4.6	10	.12	5.5	44	.65	6.7	38	.75
24	4.8	11	.13	4.7	32	.40	4.7	28	.38
25	4.5	12	.14	4.4	29	.34	4.2	17	.20
26	4.1	12	.14	4.2	23	.25	4.1	13	.14
27	4.1	12	.13	18	82	12	5.1	18	.33
28	4.2	11	.12	7.2	26	.62	4.9	22	.29
29	4.2	11	.12	5.0	13	.17	7.1	22	.44
30	4.2	9	.11	4.5	13	.16	6.3	26	.49
31	4.1	7	.08	4.3	13	.15	---	---	---
TOTAL	225.9	---	497.62	159.2	---	18.94	150.2	---	15.62
YEAR	2708.0		2725.26						

## RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	6.7	38	.75	5.2	18	.25	5.1	135	1.9
2	11	106	5.5	5.3	18	.26	5.0	127	1.7
3	6.6	33	.58	4.4	17	.21	7.4	126	2.5
4	5.2	22	.31	4.4	16	.19	9.4	113	3.0
5	5.6	15	.20	5.2	16	.22	6.2	48	.86
6	5.0	12	.16	5.6	26	.39	5.6	16	.24
7	5.5	21	.47	16	559	34	5.3	11	.15
8	5.3	42	.62	42	724	111	5.1	8	.11
9	4.8	36	.48	15	142	8.3	5.0	8	.10
10	4.8	30	.40	7.3	46	.98	5.0	8	.10
11	4.7	24	.31	6.0	33	.53	4.9	8	.10
12	4.6	20	.24	5.5	27	.40	5.1	8	.10
13	4.5	19	.22	5.3	22	.31	5.4	12	.21
14	4.5	15	.19	5.1	20	.27	6.5	27	.58
15	4.7	12	.15	4.9	19	.25	5.0	8	.11
16	4.4	12	.14	4.9	15	.20	5.0	8	.10
17	4.4	12	.14	4.9	12	.16	5.0	8	.10
18	4.2	12	.14	4.7	12	.16	4.9	8	.10
19	4.3	12	.14	4.7	12	.15	4.8	8	.10
20	4.2	12	.14	4.8	11	.14	8.7	60	2.8
21	4.1	12	.14	9.7	95	9.0	7.7	44	1.1
22	9.9	98	15	10	70	2.3	5.6	12	.18
23	5.0	13	.19	5.6	35	.53	5.3	10	.13
24	4.4	11	.13	6.4	34	.72	5.2	16	.22
25	4.1	10	.12	5.3	19	.27	5.1	29	.39
26	4.1	10	.12	5.0	22	.29	5.0	34	.45
27	4.1	10	.12	5.3	58	.77	5.0	24	.32
28	4.1	10	.11	5.0	100	1.3	5.0	13	.17
29	4.1	9	.10	4.9	119	1.6	5.0	8	.11
30	10	94	8.2	5.4	129	1.8	5.0	8	.10
31	5.3	21	.32	---	---	---	5.0	8	.10
TOTAL	164.2	---	35.83	223.8	---	176.95	173.3	---	18.23

## RIO GRANDE DE LOIZA BASIN

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50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	4.9	8	.10	4.1	5	.06	3.8	6	.05
2	4.8	8	.10	4.1	6	.08	3.8	5	.04
3	4.9	8	.10	4.3	8	.10	3.8	4	.03
4	4.9	8	.10	4.3	10	.11	3.7	3	.02
5	235	1370	3730	4.3	9	.10	3.6	3	.02
6	116	1340	566	4.3	7	.07	3.6	4	.04
7	14	104	4.9	4.2	5	.06	3.6	6	.06
8	7.8	26	.57	4.2	7	.08	3.5	7	.07
9	7.1	22	.48	4.3	10	.11	3.4	8	.08
10	9.2	62	2.1	5.4	10	.13	3.5	8	.08
11	6.0	11	.17	4.5	10	.11	3.5	7	.07
12	5.4	11	.15	4.3	9	.10	3.3	6	.06
13	5.4	11	.15	4.3	8	.09	3.3	6	.06
14	5.0	11	.14	4.3	6	.07	3.4	5	.05
15	4.8	11	.14	4.2	6	.07	3.6	4	.04
16	11	123	17	4.4	8	.08	3.3	4	.04
17	8.7	60	2.6	4.3	9	.11	4.3	5	.05
18	5.3	82	1.2	4.3	13	.15	3.7	5	.05
19	4.8	12	.15	4.3	18	.21	3.5	5	.04
20	4.7	12	.14	4.1	20	.22	3.4	6	.05
21	4.6	10	.12	4.0	19	.21	3.2	7	.06
22	4.6	6	.08	4.1	15	.16	3.3	6	.05
23	4.5	5	.06	4.1	10	.10	3.1	4	.03
24	4.5	5	.06	4.2	8	.08	2.9	3	.02
25	4.6	5	.06	4.2	8	.09	2.9	6	.04
26	4.6	5	.06	4.1	8	.09	2.9	9	.06
27	4.4	5	.06	4.0	8	.08	2.9	10	.08
28	4.4	5	.06	4.0	8	.08	9.1	91	11
29	4.4	5	.06	3.8	7	.07	3.7	20	.22
30	4.4	5	.06	---	---	---	3.1	16	.12
31	4.1	5	.06	---	---	---	2.9	12	.09
TOTAL	518.8	---	4327.03	123.0	---	3.07	111.6	---	12.77

## RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL				MAY			JUNE		
1	2.9	10	.07	3.0	10	.08	4.1	12	.14
2	3.0	8	.06	3.6	7	.08	4.1	12	.13
3	3.0	6	.05	2.8	5	.03	4.0	12	.12
4	2.9	4	.04	2.6	3	.02	4.3	11	.14
5	2.9	4	.04	2.6	3	.02	3.9	11	.11
6	3.0	7	.07	2.9	2	.02	3.7	9	.09
7	3.4	12	.11	2.9	2	.02	4.7	18	.35
8	3.1	13	.11	2.6	2	.02	4.4	37	.46
9	2.9	11	.09	2.5	2	.02	3.9	29	.32
10	2.8	9	.07	2.4	2	.02	4.3	25	.30
11	2.9	6	.05	2.5	2	.02	4.4	21	.26
12	3.1	5	.04	3.5	13	.34	6.2	128	2.5
13	2.8	4	.03	3.1	37	.34	5.6	31	.53
14	2.7	2	.02	2.7	33	.25	4.4	18	.22
15	2.7	2	.02	2.7	25	.20	4.0	16	.18
16	2.7	2	.02	3.6	21	.22	4.4	15	.17
17	2.9	3	.03	5.1	36	1.7	4.0	13	.14
18	2.9	5	.04	3.7	15	.17	3.8	12	.12
19	11	117	.19	4.6	25	.46	3.7	12	.12
20	5.1	40	.80	5.1	32	.83	3.6	12	.12
21	3.1	23	.19	7.4	63	3.7	5.0	27	.46
22	3.0	21	.17	5.0	26	.40	3.7	24	.24
23	2.8	20	.15	36	420	167	3.5	20	.18
24	2.7	16	.11	34	468	97	3.4	15	.13
25	2.6	12	.08	18	227	31	3.4	10	.09
26	2.6	13	.09	9.6	75	2.3	3.3	11	.09
27	2.6	13	.10	6.5	31	.56	3.4	16	.15
28	2.6	12	.08	5.2	19	.26	3.6	19	.18
29	2.5	10	.06	4.7	16	.20	3.6	17	.16
30	2.6	10	.07	4.5	14	.16	3.3	13	.11
31	---	---	---	4.3	12	.14	---	---	---
TOTAL	95.8	---	21.86	199.7	---	307.58	121.7	---	8.31



## RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	3.4	8	.08	3.2	8	.07	3.3	11	.11
2	3.3	8	.07	3.4	9	.08	3.2	12	.10
3	3.4	10	.09	3.8	10	.10	e3.9	12	e.11
4	3.4	10	.10	6.1	36	1.2	e3.5	11	e.11
5	3.9	10	.10	77	712	621	e6.3	72	e2.2
6	3.4	10	.10	13	186	11	e4.4	131	e1.7
7	3.4	10	.10	5.7	68	1.1	e3.9	109	e1.1
8	4.0	10	.10	4.5	36	.44	e3.9	96	e.98
9	e3.6	8	.09	4.0	36	.37	e7.6	114	e4.1
10	3.4	9	.09	3.6	33	.32	e3.5	56	.57
11	4.2	19	.22	3.7	25	.25	3.4	33	.29
12	3.3	35	.31	3.8	15	.15	3.2	25	.22
13	e3.1	45	e.38	3.5	7	.07	3.1	19	.16
14	e3.1	41	e.34	3.6	4	.04	4.0	20	.28
15	e3.5	27	e.25	3.4	5	.04	3.6	22	.23
16	e5.0	20	e.26	3.2	5	.04	6.1	38	1.0
17	e7.0	19	e.36	3.1	5	.04	4.1	19	.21
18	e4.5	17	e.20	3.0	5	.04	4.6	24	.41
19	e3.8	15	e.16	2.9	6	.04	41	483	230
20	e3.6	13	e.12	2.9	6	.04	31	601	103
21	e5.0	11	e.14	2.9	4	.03	14	896	37
22	e7.0	15	e.28	2.9	4	.03	19	635	45
23	e4.3	19	e.21	3.0	7	.06	e11	196	e7.4
24	e5.0	17	e.22	3.1	10	.08	e6.4	90	e1.6
25	e6.2	13	e.22	3.0	11	.08	5.3	55	.82
26	e4.8	10	e.13	3.0	10	.08	4.9	35	.48
27	e4.8	7	e.09	3.5	12	.11	4.7	30	.39
28	e3.4	5	e.04	3.2	12	.10	4.6	27	.33
29	3.0	5	.04	3.4	11	.09	4.5	20	.24
30	3.1	5	.04	3.9	11	.12	4.8	13	.17
31	3.1	6	.06	4.3	11	.13	---	---	---
TOTAL	126.0	---	4.99	193.6	---	637.34	226.8	---	440.31
YEAR	2278.3		5994.27						

e Estimated

## RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
OCT 1991 02...	0915	13	2070	72	64	73	74
JAN 1992 05...	1752	1550	7960	33300	31	37	44

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
OCT 1991 02...	76	80	99	99.4	99.8	100	100
JAN 1992 05...	51	60	76	85	94	98	99

## RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1991					
07...	1521	5.9	813	13	100
JAN 1992					
05...	1657	706	7700	14600	87
05...	1927	943	3840	9760	87
05...	2052	602	2860	4650	84
07...	1450	11	50	1.5	99
MAY					
16...	1845	2.8	1700	13	99
SEP					
18...	1622	5.3	343	5	98
22...	1725	46	1340	166	98
22...	1931	41	1540	170	99

## RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR

LOCATION.--Lat 18°14'55", long 66°01'40", Hydrologic Unit 21010005, on left bank, at C. 4 street Villa Blanca housing area at Caguas, 1.8 mi (2.9 km) upstream from Río Grande de Loiza, and 0.95 mi (1.53 km) northeast from Caguas Plaza.

DRAINAGE AREA.--11.71 mi<sup>2</sup> (30.33 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	35	15	11	11	6.7	8.7	26	13	8.8	8.7	14
2	42	23	16	12	11	7.6	7.7	25	12	8.7	11	11
3	29	17	25	12	12	6.7	8.0	9.8	12	8.5	14	16
4	23	14	28	12	12	8.4	7.8	8.1	70	9.7	31	15
5	21	13	19	1930	12	9.3	7.6	7.2	19	16	570	54
6	19	30	17	1160	12	7.8	6.7	17	15	9.4	81	28
7	15	105	17	60	13	6.9	12	10	23	9.2	40	24
8	15	206	18	36	11	7.2	8.7	8.2	18	16	24	21
9	13	75	16	36	11	7.2	8.2	7.9	14	10	18	45
10	13	33	14	36	27	6.7	8.1	7.2	26	9.4	18	18
11	13	26	14	24	12	6.7	8.9	7.9	18	28	24	15
12	11	22	18	21	11	6.9	9.9	22	27	10	18	15
13	9.8	38	16	22	11	7.0	8.2	11	26	11	16	15
14	9.4	25	22	19	13	7.0	7.8	8.8	14	8.5	18	15
15	10	21	17	18	11	10	9.1	9.3	12	8.2	16	17
16	9.5	23	14	50	9.9	6.9	8.1	29	23	12	15	42
17	9.5	20	14	43	9.8	12	11	150	13	19	16	27
18	8.0	19	14	21	9.7	12	10	24	11	13	13	20
19	7.5	18	14	17	9.2	12	23	17	12	11	12	327
20	7.2	19	28	16	8.1	15	28	23	12	9.4	11	172
21	7.0	32	32	16	8.1	11	11	19	20	13	11	103
22	92	44	18	16	9.3	8.5	10	22	13	19	12	143
23	23	23	18	15	8.8	8.1	9.7	159	14	11	12	48
24	12	26	14	14	10	7.5	8.1	124	12	11	22	28
25	9.6	22	13	16	8.8	6.8	8.1	43	11	16	9.8	18
26	9.2	19	14	17	9.7	7.2	7.5	39	10	11	9.8	15
27	8.8	34	14	14	8.1	7.2	7.2	32	9.2	11	9.8	14
28	8.6	18	13	13	7.3	12	7.2	22	9.2	8.9	11	16
29	56	17	12	13	7.0	16	8.2	18	9.2	8.1	16	15
30	54	18	15	14	---	8.3	9.9	18	9.0	8.2	11	16
31	25	---	13	12	---	8.9	---	15	---	11	20	---
TOTAL	621.1	1035	532	3716	313.8	271.5	294.4	939.4	506.6	364.0	1119.1	1327
MEAN	20.0	34.5	17.2	120	10.8	8.76	9.81	30.3	16.9	11.7	36.1	44.2
MAX	92	206	32	1930	27	16	28	159	70	28	570	327
MIN	7.0	13	12	11	7.0	6.7	6.7	7.2	9.0	8.1	8.7	11
MED	13	23	16	17	11	7.6	8.2	18	13	11	16	18
AC-FT	1230	2050	1060	7370	622	539	584	1860	1000	722	2220	2630
CFSM	1.71	2.95	1.47	10.2	.92	.75	.84	2.59	1.44	1.00	3.08	3.78
IN.	1.97	3.29	1.69	11.80	1.00	.86	.94	2.98	1.61	1.16	3.56	4.22

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1992, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	20.0	34.5	17.2	70.1	17.2	12.1	11.1	23.8	13.7	18.7	25.0	30.3
MAX	20.0	34.5	17.2	120	23.8	15.3	12.4	30.3	16.9	25.6	36.1	44.2
(WY)	1992	1992	1992	1992	1991	1991	1991	1992	1992	1991	1992	1992
MIN	20.0	34.5	17.2	20.3	10.8	8.76	9.81	17.2	10.5	11.7	13.8	16.4
(WY)	1992	1992	1992	1991	1992	1992	1992	1991	1991	1992	1991	1991

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1991 - 1992

ANNUAL TOTAL	6891.1	11039.9	
ANNUAL MEAN	18.9	30.2	
HIGHEST ANNUAL MEAN		30.2	1992
LOWEST ANNUAL MEAN		30.2	1992
HIGHEST DAILY MEAN	360	1930	Jan 5 1992
LOWEST DAILY MEAN	5.6	6.7	Mar 1 1991
ANNUAL SEVEN-DAY MINIMUM	5.9	6.9	Mar 7 1991
INSTANTANEOUS PEAK FLOW		13400	Jan 5 1992
INSTANTANEOUS PEAK STAGE		19.91	Jan 5 1992
ANNUAL RUNOFF (AC-FT)	13670	21900	
ANNUAL RUNOFF (CFSM)	1.61	2.58	
ANNUAL RUNOFF (INCHES)	21.89	35.07	
10 PERCENT EXCEEDS	32	33	
50 PERCENT EXCEEDS	13	14	
90 PERCENT EXCEEDS	6.8	8.1	7.2

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.-- OCTOBER 1990 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
MAR. 03	1407	7.10	420	28.0	AUG. 28	1120	10	420	30.0
JUN. 02	1350	12.5	410	32.0					

# RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1991 to current year.

**INSTRUMENTATION.--** DH-48 and automatic sediment sampler.

PERIOD OF DAILY RECORD.--

**SUSPENDED-SEDIMENT DISCHARGE: December 1990 to September 1992**

**EXTREMES FOR PERIOD OF DAILY RECORD.--**

SEDIMENT CONCENTRATION: Maximum daily mean, 1,430 mg/L Jan. 05, 1992; Minimum daily mean, 5 mg/L Several days.

**SEDIMENT LOADS:** Maximum daily mean, 8,820 tons (8,000 tonnes) Jan. 05, 1992; Minimum daily mean, 0.16 ton (0.14 tonne) Oct. 28, 1991.

**EXTREMES FOR WATER YEARS 1991-92.--**

Water Year	Suspended-sediment concentration (mg/L)		Suspended-sediment discharge (tons per day)	
	maximum	minimum	maximum	minimum
1991	770 (Jul. 16)	20 (Several days)	902 (Jul. 16)	.35 (Several days)
1992	1,430 (Jan. 06)	5 (Several days)	8,820 (Jan. 06)	.16 (Oct. 28)

**SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991**

[illegible]

RIO GRANDE DE LOIZA BASIN

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50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	JANUARY			FEBRUARY			MARCH		
1	97	266	85	14	97	3.5	12	63	1.9
2	37	151	15	13	110	3.9	10	39	1.1
3	26	125	9.2	14	121	4.4	13	49	1.8
4	22	112	7.0	14	117	4.4	16	66	2.7
5	23	110	6.7	119	257	181	19	114	6.6
6	29	114	8.5	45	170	25	25	130	11
7	23	118	7.6	30	146	12	14	83	3.1
8	23	116	8.5	18	103	5.3	15	88	3.8
9	20	100	5.3	15	85	3.5	13	80	2.9
10	25	110	7.1	14	79	3.2	10	75	2.1
11	22	114	7.0	28	125	12	11	76	2.2
12	19	102	5.5	50	161	45	11	109	3.2
13	16	92	4.1	39	328	36	11	150	4.4
14	15	87	3.6	24	245	15	13	154	5.2
15	16	85	3.6	21	145	8.2	12	136	4.5
16	16	87	3.8	16	66	3.2	9.8	117	3.3
17	15	88	3.6	14	81	3.1	8.9	99	2.4
18	14	83	3.2	22	110	7.8	14	82	3.0
19	15	84	3.4	35	172	17	11	92	2.8
20	14	81	3.1	20	142	7.9	11	72	2.1
21	16	78	3.2	17	90	4.2	11	72	2.1
22	12	72	2.6	13	85	3.1	73	308	76
23	13	74	2.5	13	114	4.0	32	306	26
24	13	75	2.6	12	180	5.9	16	236	10
25	13	75	2.6	13	235	8.0	14	170	6.6
26	13	75	2.6	10	281	7.9	17	124	6.3
27	13	75	2.6	9.8	232	6.2	12	68	2.3
28	12	70	2.3	13	118	4.3	11	67	2.0
29	12	69	2.2	---	---	---	10	120	3.3
30	12	76	2.5	---	---	---	10	202	5.4
31	13	86	2.9	---	---	---	10	252	6.8
TOTAL	629	---	229.4	665.8	---	445.0	475.7	---	216.9

## RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	10	218	5.9	10	44	1.2	11	25	.77
2	10	145	3.9	9.6	47	1.2	10	25	.70
3	11	92	2.6	13	51	1.8	9.5	26	.67
4	12	71	2.2	9.2	57	1.4	10	27	.72
5	13	74	2.5	8.7	60	1.4	15	69	3.9
6	13	75	2.6	10	68	2.1	15	59	3.7
7	13	75	2.6	16	84	4.1	11	29	.86
8	38	128	19	26	115	12	10	79	2.0
9	16	80	3.4	19	101	5.4	8.5	103	2.3
10	11	65	1.9	15	74	3.3	7.4	89	1.7
11	13	79	3.3	34	142	18	9.5	63	2.2
12	23	109	9.9	36	142	19	14	65	3.3
13	21	106	7.0	14	63	2.5	7.9	21	.43
14	12	77	2.6	13	80	2.7	7.2	21	.40
15	14	86	3.5	13	132	4.6	7.7	21	.43
16	12	95	3.2	13	168	5.7	7.8	21	.43
17	9.8	95	2.6	12	125	4.1	6.7	21	.38
18	9.5	88	2.2	23	111	7.7	6.5	21	.37
19	9.5	68	1.7	43	149	26	6.7	22	.39
20	9.8	43	1.1	26	110	9.4	6.3	22	.35
21	11	33	.96	17	93	4.7	6.5	22	.41
22	10	30	.84	16	51	2.4	6.5	22	.39
23	9.0	36	.84	13	23	.77	13	64	3.7
24	8.9	44	1.0	12	34	1.1	7.8	39	.88
25	9.3	42	1.0	37	120	17	6.3	25	.43
26	8.9	40	.94	17	44	2.0	7.6	29	.57
27	8.6	40	.94	13	33	1.2	5.8	30	.49
28	8.1	40	.88	12	28	.91	6.7	47	1.0
29	7.9	41	.84	12	25	.78	5.6	49	.76
30	8.5	48	1.2	11	25	.74	61	190	108
31	---	---	---	10	25	.68	---	---	---
TOTAL	370.8	---	93.14	533.5	---	165.88	314.5	---	142.63



50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	93	232	100	e7.0	39	e.62	e7.8	50	e1.2
2	16	128	6.1	e6.4	43	e.74	e8.0	44	e.95
3	9.0	65	1.6	e6.0	47	e.75	e7.8	49	e.98
4	8.1	42	.91	e5.8	45	e.71	e7.8	70	e1.4
5	8.1	51	1.1	e5.8	41	e.64	e7.4	88	e1.8
6	7.6	80	1.7	e6.0	40	e.64	e7.1	97	e1.9
7	10	99	2.8	e6.0	40	e.64	e7.4	99	e1.9
8	12	71	2.5	e6.0	40	e.64	e7.7	101	e2.1
9	11	70	2.0	e5.8	103	e1.7	e8.0	100	e2.6
10	7.3	42	.87	e6.0	89	e1.5	e8.1	48	e1.0
11	6.8	25	.46	e5.8	63	e.98	e7.9	32	e.69
12	6.7	24	.44	e6.0	45	e.73	e7.7	27	e.57
13	6.4	29	.51	e5.8	40	e.62	e7.7	44	e.90
14	6.3	32	.54	e6.0	60	e.97	e7.8	71	e1.5
15	55	142	64	e6.1	83	e1.3	e7.3	75	e1.5
16	360	770	902	e6.6	55	e.93	e7.4	70	e1.4
17	30	163	14	e6.8	40	e.90	e120	352	e166
18	18	132	6.6	e6.2	36	e.59	e15	149	e6.7
19	19	134	8.1	e6.0	32	e.51	e20	152	e21
20	14	91	3.5	e6.0	31	e.50	e13	116	e5.3
21	10	72	2.0	e7.0	45	e.86	e15	139	e8.0
22	9.3	50	1.3	e65	205	e140	e25	152	e13
23	9.1	38	.88	e20	105	e7.1	e27	178	e22
24	12	69	2.7	e9.0	49	e1.2	e18	68	e2.8
25	8.7	36	.85	e8.3	40	e.89	e13	41	e1.7
26	6.9	21	.39	e8.0	39	e.86	e11	34	e1.1
27	6.7	20	.35	e126	353	e223	e12	32	e.96
28	6.4	20	.36	e37	308	e39	e21	86	e5.9
29	e6.4	22	e.41	e9.2	108	e2.7	e35	195	e25
30	e6.4	29	e.55	e8.4	69	e1.6	e25	127	e6.8
31	e6.6	38	e.65	e8.0	52	e1.1	---	---	---
TOTAL	792.8	---	1130.17	428.0	---	434.92	492.9	---	308.65

e Estimated

## RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	31	74	6.4	35	116	24	15	22	.90
2	42	93	11	23	56	3.6	16	13	.57
3	29	44	3.7	17	49	2.5	25	47	4.6
4	23	17	1.1	14	17	.65	28	30	2.4
5	21	11	.63	13	10	.36	19	13	.67
6	19	12	.61	30	54	7.9	17	12	.56
7	15	8	.34	105	224	121	17	10	.44
8	15	7	.31	206	328	278	18	8	.41
9	13	8	.29	75	286	86	16	7	.30
10	13	10	.34	33	70	6.4	14	5	.20
11	13	12	.40	26	30	2.1	14	5	.19
12	11	12	.35	22	16	.99	18	5	.23
13	9.8	11	.27	38	59	14	16	5	.23
14	9.4	10	.25	25	55	3.8	22	5	.27
15	10	10	.27	21	39	2.2	17	5	.22
16	9.5	10	.28	23	27	1.7	14	5	.19
17	9.5	10	.25	20	19	1.0	14	5	.20
18	8.0	10	.22	19	13	.68	14	5	.20
19	7.5	10	.20	18	10	.49	14	5	.20
20	7.2	10	.20	19	10	.52	28	40	5.1
21	7.0	10	.19	32	48	10	32	72	6.7
22	92	165	213	44	46	6.9	18	28	1.4
23	23	59	4.5	23	9	.58	18	10	.48
24	12	28	.97	26	24	2.2	14	14	.54
25	9.6	14	.37	22	6	.34	13	28	1.0
26	9.2	8	.21	19	5	.26	14	41	1.5
27	8.8	7	.17	34	72	9.3	14	26	.99
28	8.6	7	.16	18	24	1.2	13	14	.47
29	56	103	121	17	10	.45	12	7	.23
30	54	112	58	18	31	1.7	15	26	1.5
31	25	61	4.6	---	---	---	13	35	1.2
TOTAL	621.1	---	430.58	1035	---	590.82	532	---	34.09

## RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	11	33	1.0	11	15	.46	6.7	63	1.1
2	12	30	.95	11	16	.49	7.6	66	1.3
3	12	27	.85	12	17	.56	6.7	67	1.2
4	12	23	.73	12	18	.58	8.4	64	1.5
5	1930	621	8220	12	18	.56	9.3	59	1.5
6	1160	1430	6730	12	17	.53	7.8	50	1.1
7	60	93	17	13	15	.52	6.9	43	.80
8	36	21	2.0	11	14	.43	7.2	39	.76
9	36	34	5.1	11	12	.37	7.2	37	.73
10	36	83	8.0	27	55	5.2	6.7	38	.68
11	24	48	3.2	12	17	.57	6.7	39	.70
12	21	30	1.7	11	15	.45	6.9	40	.75
13	22	20	1.2	11	13	.39	7.0	40	.74
14	19	14	.73	13	27	1.1	7.0	38	.73
15	18	11	.52	11	29	.87	10	36	1.0
16	50	225	155	9.9	25	.66	6.9	34	.62
17	43	240	53	9.8	25	.65	12	32	1.1
18	21	21	1.2	9.7	29	.77	12	30	.99
19	17	20	.93	9.2	39	.98	12	28	.85
20	16	18	.80	8.1	50	1.1	15	26	1.1
21	16	13	.55	8.1	55	1.2	11	25	.78
22	16	9	.38	9.3	55	1.4	8.5	25	.56
23	15	8	.32	8.8	54	1.3	8.1	26	.56
24	14	6	.25	10	51	1.4	7.5	26	.53
25	16	5	.22	8.8	47	1.1	6.8	25	.47
26	17	5	.20	9.7	45	1.2	7.2	23	.44
27	14	5	.18	8.1	46	1.0	7.2	21	.40
28	13	6	.22	7.3	52	1.0	12	30	1.5
29	13	8	.31	7.0	58	1.1	16	54	2.6
30	14	11	.40	---	---	---	8.3	36	.82
31	12	14	.45	---	---	---	8.9	35	.84
TOTAL	3716	---	15207.39	313.8	---	27.94	271.5	---	28.75

## RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	8.7	37	.85	26	84	13	13	61	2.1
2	7.7	36	.75	25	63	5.6	12	59	2.0
3	8.0	29	.62	9.8	40	1.1	12	57	1.9
4	7.8	22	.47	8.1	33	.72	70	157	81
5	7.6	19	.38	7.2	29	.56	19	50	2.7
6	6.7	16	.29	17	80	4.0	15	37	1.7
7	12	36	1.3	10	95	2.6	23	58	5.4
8	8.7	29	.66	8.2	92	2.0	18	49	2.5
9	8.2	26	.57	7.9	90	2.0	14	44	1.7
10	8.1	25	.54	7.2	87	1.7	26	59	5.5
11	8.9	24	.59	7.9	83	1.8	18	42	2.1
12	9.9	25	.67	22	99	11	27	77	7.2
13	8.2	25	.56	11	70	2.2	26	54	4.0
14	7.8	25	.52	8.8	56	1.3	14	35	1.3
15	9.1	22	.55	9.3	45	1.1	12	30	.94
16	8.1	19	.42	29	70	10	23	35	3.0
17	11	27	.97	150	240	391	13	10	.37
18	10	26	.74	24	108	8.5	11	10	.30
19	23	53	8.6	17	57	2.8	12	10	.32
20	28	65	6.3	23	69	5.3	12	9	.28
21	11	29	.86	19	94	4.8	20	57	3.5
22	10	27	.71	22	77	4.9	13	24	.87
23	9.7	29	.76	159	313	403	14	18	.68
24	8.1	30	.67	124	251	190	12	14	.47
25	8.1	29	.64	43	92	12	11	11	.32
26	7.5	27	.56	39	90	10	10	24	.68
27	7.2	25	.50	32	76	7.2	9.2	21	.52
28	7.2	24	.45	22	49	2.9	9.2	18	.44
29	8.2	23	.61	18	52	2.5	9.2	18	.45
30	9.9	61	1.6	18	56	2.8	9.0	19	.47
31	---	---	---	15	60	2.5	---	---	---
TOTAL	294.4	---	33.71	939.4	---	1110.88	506.6	---	134.71

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	8.8	22	.52	8.7	21	.49	14	29	1.1
2	8.7	27	.62	11	17	.51	11	20	.59
3	8.5	31	.71	14	32	2.3	16	14	.58
4	9.7	36	.95	31	145	24	15	10	.41
5	16	84	3.7	570	526	2080	54	127	42
6	9.4	87	2.3	81	321	127	28	71	5.4
7	9.2	75	1.9	40	76	11	24	54	3.4
8	16	48	2.2	24	56	3.9	21	56	5.0
9	10	18	.50	18	39	1.9	45	100	18
10	9.4	10	.25	18	33	1.6	18	25	1.2
11	28	54	13	24	97	8.3	15	26	1.1
12	10	27	.76	18	62	3.1	15	28	1.1
13	11	47	1.6	16	48	2.0	15	29	1.1
14	8.5	59	1.4	18	36	1.7	15	30	1.3
15	8.2	43	.93	16	28	1.2	17	31	1.4
16	12	36	1.3	15	24	.94	42	104	14
17	19	39	2.5	16	22	.97	27	61	4.7
18	13	7	.24	13	20	.69	20	34	1.8
19	11	18	.57	12	19	.61	327	724	1780
20	9.4	33	.83	11	25	.71	172	1090	579
21	13	38	1.7	11	33	1.0	103	443	139
22	19	52	3.4	12	38	1.2	143	367	177
23	11	32	.90	12	39	1.2	48	150	22
24	11	30	.91	22	62	4.6	28	253	18
25	16	37	1.8	9.8	32	.83	18	295	14
26	11	25	.78	9.8	26	.69	15	120	5.0
27	11	21	.59	9.8	24	.63	14	27	1.0
28	8.9	16	.38	11	20	.58	16	19	.80
29	8.1	15	.31	16	45	2.5	15	19	.77
30	8.2	13	.29	11	53	1.6	16	21	.90
31	11	29	1.0	20	38	2.0	---	---	---
TOTAL	364.0	---	48.84	1119.1	---	2289.75	1327	---	2841.65
YEAR	11039.9		22779.11						

## RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

WATER QUALITY DATA, WATER YEARS JULY 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
JUL 1991							
16...	1348	427	2010	2320	55	66	72
AUG							
22...	1102	393	2330	2470	35	42	48
27...	1610	774	1260	2630	43	--	49
OCT							
22...	1622	869	1800	4200	37	46	53
NOV							
08...	2322	292	1170	922	60	67	--
JAN 1992							
05...	1702	2882	4450	34600	39	50	68
05...	1952	8476	2540	58100	43	52	62
MAY							
17...	1855	1190	3350	10700	35	41	48

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
JUL 1991							
16...	78	82	97	98	99	99.8	100
AUG							
22...	60	69	86	93	97	98	99
27...	--	69	94	98	99	100	100
OCT							
22...	64	71	90	95	98	99	100
NOV							
08...	70	74	98	99	99.6	100	100
JAN 1992							
05...	75	81	98	99.3	99.8	100	100
05...	75	81	98	99	99.8	100	100
MAY							
17...	60	72	94	97	99	99.7	100

## RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
22...	1642	1310	1360	4820	97
22...	1740	264	615	439	94
NOV					
07...	1243	106	266	76	99
08...	1902	537	1020	1470	91
08...	2027	484	440	575	90
08...	2212	455	904	1110	98
DEC					
26...	1253	13	47	2	96
JAN 1992					
05...	1622	1050	1130	3210	98
05...	2007	8450	771	17600	99
05...	2202	2490	1750	1170	99
16...	2052	488	2170	2860	77
16...	2242	135	1270	464	77
17...	0027	122	1135	374	77
MAY					
17...	1655	604	1470	2400	84
24...	1255	57	175	27	98
JUN					
03...	1524	12	336	11	98
AUG					
05...	0357	298	723	582	90
SEP					
19...	1722	1394	2080	7810	84
19...	2120	1080	2120	6200	88
22...	1357	267	1680	1210	79

## RIO GRANDE DE LOIZA BASIN

50055250 RIO CAGUITAS AT HIGHWAY 30 AT CAGUAS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'11", long 66°01'26", at Highway 30 bridge, and 0.8 mi (1.3 km) east of Caguas plaza.

DRAINAGE AREA.--14.1 mi<sup>2</sup> (36.5 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1972 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991											
08...	1050	38	564	7.3	28.0	15	1.5	39	25	350000	K106000
DEC											
06...	0945	41	594	7.3	25.5	3.4	0.9	21	59	350000	33000
FEB 1992											
13...	0910	33	644	7.1	25.5	1.1	2.0	64	84	6600	3600
MAY											
05...	1110	9.7	651	6.7	28.5	3.9	2.3	48	85	20000	K1100
JUN											
10...	1000	31	517	6.6	28.0	14	2.6	53	62	K100000	59000
AUG											
20...	1040	28	630	7.0	30.0	3.0	1.6	41	67	2900	2400

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
08...	110	25	11	26	1	5.2	170	<0.5	14	29
DEC										
06...	--	--	--	--	--	--	160	--	--	--
FEB 1992										
13...	--	--	--	--	--	--	180	--	--	--
MAY										
05...	140	38	12	48	2	7.6	170	<0.5	52	61
JUN										
10...	--	--	--	--	--	--	90	--	--	--
AUG										
20...	140	38	12	49	2	7.0	110	--	51	59

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
08...	0.10	29	241	24.5	30	1.58	0.220	1.80	9.00	4.0
DEC										
06...	--	--	--	--	16	0.230	0.130	0.360	8.70	2.3
FEB 1992										
13...	--	--	--	--	25	0.120	0.060	0.180	11.0	5.0
MAY										
05...	0.20	29	350	9.16	10	0.100	0.080	0.180	13.0	5.0
JUN										
10...	--	--	--	--	23	0.510	0.100	0.610	6.80	2.5
AUG										
20...	0.20	28	344	26	6	0.130	0.080	0.210	0.610	13

K = non-ideal count



## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

## RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR

LOCATION.--Lat 18°15'32", long 66°02'24", Hydrologic Unit 21010005, on left bank, in the Bairoa Housing Area, 1.6 mi (2.6 km) northwest of Plaza de Caguas, 4.1 mi (6.6 km) east of Plaza de Aguas Buenas, and 0.9 mi (1.4 km) northwest of Escuela Pepita Garriga.

DRAINAGE AREA.--5.08 mi<sup>2</sup> (13.15 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. Mean daily discharge affected by domestic discharge from nearby station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e4.0	17	3.9	e3.8	e3.3	3.0	e2.3	e2.5	5.1	e2.8	3.6	5.4
2	e7.0	11	3.9	e3.6	e3.4	2.8	e2.4	e3.2	5.0	e2.8	3.8	3.4
3	3.9	4.7	e5.6	e3.6	e3.5	2.8	e2.4	e2.7	4.0	e2.7	4.9	3.2
4	3.2	4.8	e6.4	e3.6	e3.5	2.8	e2.4	e2.3	9.4	e3.1	15	8.3
5	4.0	8.9	4.6	e180	e3.5	2.8	e2.3	e2.2	3.8	e5.2	82	4.4
6	3.2	5.8	4.3	e100	e3.5	2.8	e2.4	e2.6	4.8	e3.0	18	11
7	3.2	18	3.9	e10	e3.4	2.8	e2.7	e2.5	5.1	e2.8	9.5	49
8	3.2	57	3.8	e6.0	e3.5	e2.6	e2.6	e2.3	5.6	e5.2	5.8	4.0
9	3.3	21	3.9	e5.4	e3.6	e2.6	e2.4	e2.2	5.9	e3.2	4.7	7.5
10	3.2	6.7	3.9	5.8	e4.3	e2.7	e2.3	e2.1	5.5	e3.0	4.5	3.6
11	3.1	e5.3	3.9	4.1	e3.6	e2.6	e2.4	e2.2	e4.5	e12	5.7	4.4
12	3.1	e4.8	3.9	3.8	e3.4	e2.5	e2.6	e3.0	e8.6	e7.6	5.1	3.1
13	3.0	e4.6	e4.9	4.1	e3.4	e2.5	e2.4	e2.7	e8.2	5.7	4.4	3.9
14	3.3	e4.4	e5.2	3.5	e3.4	e2.4	e2.2	e2.4	e4.5	6.1	4.9	2.8
15	3.8	e4.2	4.0	3.2	e3.3	e2.7	e2.2	e2.5	e3.8	6.7	4.4	2.9
16	3.4	e4.0	3.8	22	e3.5	e2.6	e2.2	e3.5	e7.4	6.1	4.2	3.1
17	3.3	3.8	3.7	8.2	e3.4	e5.2	e2.4	e4.7	e4.1	5.6	4.3	3.4
18	3.0	3.8	3.6	e4.4	e3.4	e2.8	e3.7	e3.4	e3.5	4.2	4.3	3.3
19	3.0	3.8	3.6	e3.9	e3.4	e2.7	e7.4	e4.3	e3.8	3.7	4.0	e88
20	2.9	3.9	e15	e3.8	e3.2	e2.6	e3.5	e4.7	e3.8	3.5	3.8	e35
21	3.7	9.2	e9.2	e3.8	e3.3	e2.5	e2.9	e6.4	e6.4	3.9	3.6	e10
22	5.0	16	4.1	e3.7	e3.2	e2.5	e2.5	e4.6	e4.2	3.8	3.7	3.9
23	4.6	12	4.0	e3.7	3.7	e2.4	e2.4	e32	e4.5	5.0	3.4	3.5
24	3.3	8.8	3.8	e3.7	4.0	e2.3	e2.3	e30	e3.8	4.1	3.8	3.5
25	3.0	6.3	3.8	e3.8	3.3	e2.3	e2.2	e14	e3.5	4.1	3.2	3.6
26	3.0	6.1	3.7	e3.7	3.2	e2.3	e2.2	e12	e3.2	3.7	3.4	3.7
27	2.9	10	3.8	e3.6	3.6	e2.3	e2.2	e10	e3.0	3.7	e2.9	3.8
28	2.7	4.3	3.8	e3.6	3.5	e33	e2.2	7.9	e3.0	3.6	e3.5	4.0
29	5.1	4.1	3.8	e3.6	3.4	e4.0	e2.1	6.7	e3.0	3.2	e5.2	4.2
30	24	4.0	3.8	e3.6	---	e2.7	e2.2	5.9	e2.9	3.2	e3.5	4.2
31	5.9	---	3.8	e3.4	---	e2.4	---	5.3	---	3.1	3.8	---
TOTAL	133.3	278.3	143.4	423.0	100.7	115.0	78.4	192.8	143.9	136.4	236.9	294.1
MEAN	4.30	9.28	4.63	13.6	3.47	3.71	2.61	6.22	4.80	4.40	7.64	9.80
MAX	24	57	15	180	4.3	33	7.4	32	9.4	12	82	88
MIN	2.7	3.8	3.6	3.2	3.2	2.3	2.1	2.1	2.9	2.7	2.9	2.8
MEQ	3.3	5.6	3.9	3.8	3.4	2.6	2.4	3.4	4.3	3.7	4.3	3.9
AC-FT	264	552	284	839	200	228	156	382	285	271	470	583
CFSM	.85	1.83	.91	2.69	.68	.73	.51	1.22	.94	.87	1.50	1.93
IN.	.98	2.04	1.05	3.10	.74	.84	.57	1.41	1.05	1.00	1.73	2.15

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1992, BY WATER YEAR (WY)

	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
MEAN	14.8	8.38	7.46	10.8	5.99	4.44	3.18	6.09	4.58	10.5	5.87	7.15
MAX	25.3	9.28	10.3	13.6	8.60	5.18	3.76	6.22	4.80	16.5	7.64	9.80
(WY)	1991	1992	1991	1992	1991	1992	1991	1992	1992	1991	1992	1992
MIN	4.30	7.48	4.63	7.91	3.47	3.71	2.61	5.96	4.37	4.40	4.09	4.50
(WY)	1992	1991	1992	1991	1992	1992	1992	1991	1991	1992	1991	1991

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1991 - 1992

ANNUAL TOTAL	2405.1	2276.2	
ANNUAL MEAN	6.59	6.22	7.46
HIGHEST ANNUAL MEAN			8.71
LOWEST ANNUAL MEAN			6.22
HIGHEST DAILY MEAN	191	180	191
LOWEST DAILY MEAN	2.6	2.1	2.1
ANNUAL SEVEN-DAY MINIMUM	2.8	2.2	2.2
INSTANTANEOUS PEAK FLOW		1580	1580
INSTANTANEOUS PEAK STAGE		12.32	12.32
ANNUAL RUNOFF (AC-FT)	4770	4510	5410
ANNUAL RUNOFF (CFSM)	1.30	1.22	1.47
ANNUAL RUNOFF (INCHES)	17.61	16.67	19.96
10 PERCENT EXCEEDS	8.4	8.4	10
50 PERCENT EXCEEDS	4.0	3.7	4.0
90 PERCENT EXCEEDS	3.1	2.5	2.8

RIO GRANDE DE LOIZA BASIN

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50055390 RIO BAIROA AT BAIROA, PR--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.-- OCTOBER 1990 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
MAY 15	1440	2.48	460	27.5	JUL. 08	1451	5.21	380	27.5
JUN. 11	0932	4.0	320	25.5	AUG. 27	1255	2.88	410	30.0

## RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

WATER QUALITY DATA, WATER YEARS JULY 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
JUL 1991							
01...	1255	154	1540	640	64	69	73
16...	1030	586	4040	6390	42	53	63
16...	1120	700	3910	7390	45	54	66
18...	1552	357	4000	3850	56	66	79

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
JUL 1991							
01...	75	79	98	99	99.3	99.6	99.8
16...	77	84	98	99	99.6	99.8	100
16...	79	83	96	98	99	99.3	99.8
18...	85	87	99	99.4	99.7	99.8	100

## RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1991					
08...	1557	29	422	33	100
22...	1250	10	186	5	99
JAN 1992					
07...	1241	10	115	3	97
SEP					
07...	1404	218	720	423	97

## RIO GRANDE DE LOIZA BASIN

50055400 RIO BAIROA NEAR CAGUAS, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'28", long 66°02'13", at bridge on Highway 1, about 2.5 mi (4.0 km) upstream from Río Grande de Loíza, and 1.4 mi (2.3 km) north of Caguas plaza.

DRAINAGE AREA.--5.4 mi<sup>2</sup> (14.0 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958, 1962-66, 1973-74, 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS. / 100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991											
16...	1230	3.9	440	7.6	26.5	3.8	1.9	23	20	59000	30000
DEC											
06...	1140	0.51	470	7.2	24.5	16	1.4	19	82	K63000	K80000
FEB 1992											
13...	1000	5.1	416	7.3	23.0	0.30	7.5	102	<10	K7700	2700
MAY											
14...	0920	1.8	485	6.9	25.5	0.60	5.5	63	11	450000	330000
JUN											
19...	1235	1.0	360	7.2	28.0	2.2	7.5	104	21	2000	2100
AUG											
26...	1515	1.5	430	7.3	28.5	1.2	5.4	59	<10	41000	k1700

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
16...	170	40	16	30	1	4.6	150	<0.5	20	35
DEC										
06...	--	--	--	--	--	--	150	--	--	--
FEB 1992										
13...	--	--	--	--	--	--	140	--	--	--
MAY										
14...	170	40	16	30	1	4.0	150	<0.5	35	45
JUN										
19...	--	--	--	--	--	--	150	--	--	--
AUG										
26...	150	37	15	26	0.9	4.3	160	--	21	39

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
16...	0.20	30	266	2.83	<1	1.33	0.070	1.40	1.10	0.90
DEC										
06...	--	--	--	--	34	1.50	0.100	1.60	4.10	2.4
FEB 1992										
13...	--	--	--	--	8	1.36	0.040	1.40	0.090	0.21
MAY										
14...	0.10	31	291	1.40	3	1.57	0.030	1.60	0.130	0.07
JUN										
19...	--	--	--	--	4	1.57	0.030	1.60	0.110	0.19
AUG										
26...	0.20	28	259	1.05	2	1.35	0.050	1.40	0.180	0.42

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

## RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR

LOCATION.--Lat 18°14'02", long 65°53'07", Hydrologic Unit 21010005, on left bank, 2.43 mi (3.91 km) northeast of Plaza de Juncos, 1.3 mi (2.1 km) southeast of Escuela La Placita and 0.35 mi (0.56 km) southwest of El Mango.

DRAINAGE AREA.--22.3 mi<sup>2</sup> (57.8 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station. Low-flow is affected by sewage discharges from a water treatment plant, 0.60 mi (0.96 km) upstream from gaging station since 1990.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158	6.0	28	13	14	6.9	4.7	16	448	3.0	3.4	14
2	244	39	34	12	14	7.2	5.2	168	224	2.6	4.1	8.8
3	144	12	64	11	14	7.7	4.7	11	31	2.4	5.0	9.4
4	46	10	140	10	18	8.4	4.4	6.5	190	2.3	4.3	8.2
5	39	23	29	550	17	16	4.3	5.3	103	2.2	405	7.4
6	26	52	20	699	46	8.4	4.3	482	101	1.9	36	21
7	16	456	16	140	34	49	5.0	102	258	1.7	29	13
8	12	1420	15	52	17	37	5.5	15	109	2.1	31	9.4
9	14	260	16	35	14	10	13	8.1	46	3.2	13	16
10	14	215	16	111	14	7.3	22	6.7	399	2.4	11	12
11	14	76	16	37	15	6.1	7.6	13	141	2.1	24	8.7
12	10	43	15	27	12	5.7	6.4	10	537	2.3	31	8.7
13	11	35	16	31	11	5.7	9.1	5.6	180	1.5	36	7.1
14	10	28	19	27	11	5.7	7.2	4.8	167	1.4	154	6.5
15	11	24	15	20	11	15	7.9	4.7	40	1.6	50	6.2
16	26	23	14	19	11	7.7	6.6	6.8	160	2.5	22	23
17	12	22	18	17	8.9	6.4	5.7	8.8	111	12	30	122
18	9.9	19	13	16	8.3	8.9	5.6	5.4	25	5.0	14	28
19	9.0	18	13	16	8.3	8.9	78	4.7	16	2.8	11	255
20	7.2	16	32	16	7.9	6.8	26	9.6	14	2.7	11	945
21	6.5	25	74	15	8.0	6.1	11	8.6	68	5.6	9.7	815
22	6.3	142	17	15	7.5	7.5	7.4	5.1	35	82	8.7	35
23	6.2	28	15	15	7.8	8.8	6.3	765	76	7.6	8.2	14
24	6.0	95	13	16	7.8	6.4	5.8	657	14	135	11	16
25	6.1	31	12	18	8.0	5.8	5.3	256	8.0	38	8.9	8.0
26	5.2	19	11	20	8.3	5.4	5.0	880	5.9	9.0	8.0	6.5
27	5.0	41	11	19	9.7	5.1	4.9	122	5.2	25	7.9	6.1
28	4.7	29	11	16	8.8	5.0	4.7	41	4.6	24	7.4	7.5
29	4.9	21	11	18	8.4	4.8	4.6	25	3.8	6.2	7.3	3.6
30	5.8	35	11	16	---	4.7	4.7	20	3.3	4.1	7.1	16
31	5.4	---	11	14	---	4.6	---	153	---	3.4	18	---
TOTAL	895.2	3263.0	746	2041	380.7	299.0	292.9	3826.7	3523.8	397.6	1027.0	2457.1
MEAN	28.9	109	24.1	65.8	13.1	9.65	9.76	123	117	12.8	33.1	81.9
MAX	244	1420	140	699	46	49	78	880	537	135	405	945
MIN	4.7	6.0	11	10	7.5	4.6	4.3	4.7	3.3	1.4	3.4	3.6
AC-FT	1780	6470	1480	4050	755	593	581	7590	6990	789	2040	4870
CFSM	1.29	4.88	1.08	2.95	.59	.43	.44	5.54	5.27	.58	1.49	3.67
IN.	1.49	5.44	1.24	3.40	.64	.50	.49	6.38	5.88	.66	1.71	4.10

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1992, BY WATER YEAR (WY)

	1990	1991	1992	1990	1991	1992	1990	1991	1992	1990	1991	1992
MEAN	94.9	72.1	41.5	51.0	28.3	13.9	8.73	48.0	52.3	23.9	34.1	53.8
MAX	161	109	59.0	65.8	44.0	18.1	9.76	123	117	33.1	35.2	81.9
(WY)	1991	1992	1991	1992	1991	1992	1992	1992	1992	1990	1990	1992
MIN	28.9	35.5	24.1	36.2	13.1	9.65	7.52	4.83	14.7	12.8	33.1	34.9
(WY)	1992	1991	1992	1991	1992	1992	1990	1990	1991	1992	1992	1990

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1990 - 1992
ANNUAL TOTAL	12213.2	19150.0	
ANNUAL MEAN	33.5	52.3	47.0
HIGHEST ANNUAL MEAN			52.3
LOWEST ANNUAL MEAN			41.6
HIGHEST DAILY MEAN	1420 Nov 8	1420 Nov 8	1420 Nov 8 1991
LOWEST DAILY MEAN	1.5 Aug 12	1.4 Jul 14	1.4 Jul 14 1992
ANNUAL SEVEN-DAY MINIMUM	1.7 Aug 8	2.0 Jul 10	1.7 Aug 8 1991
INSTANTANEOUS PEAK FLOW		5870 Nov 8	5870 Nov 8 1991
INSTANTANEOUS PEAK STAGE		17.38 Nov 8	17.38 Nov 8 1991
INSTANTANEOUS LOW FLOW		1.4 Jul 13	1.4 Jul 13 1992
ANNUAL RUNOFF (AC-FT)	24220	37980	34040
ANNUAL RUNOFF (CFSM)	1.50	2.35	2.11
ANNUAL RUNOFF (INCHES)	20.37	31.95	28.63
10 PERCENT EXCEEDS	71	122	94
50 PERCENT EXCEEDS	12	12	12
90 PERCENT EXCEEDS	3.9	4.7	3.9



## RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--OCTOBER 1990 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
MAR. 16	0855	7.58	300	24.5	JUL. 14	0844	1.37	420	28.0
JUN. 03	1037	31.3	240	26.0	AUG. 21	0952	9.73	350	31.0
JUN. 23	0921	87.7	220	26.5					

## RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1985 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: March 1990 to September 1992.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,000 mg/L Oct. 21, 1990; Minimum daily mean, 4 mg/L April 7, 1991.

SEDIMENT LOADS: Maximum daily mean, 7,110 tons (6,450 tonnes) Nov. 08, 1991; Minimum daily mean, 0.05 ton (0.3 tonne) several days.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 978 mg/L NOV. 08, 1991; Minimum daily mean, 5 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 7,110 tons (6,450 tonnes) Nov. 08, 1991; Minimum daily mean, 0.05 ton (0.04 tonne) several days.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	158	167	76	6.0	18	.44	28	42	3.2
2	244	240	180	39	59	9.9	34	50	4.7
3	144	172	75	12	26	.84	64	76	27
4	46	65	8.5	10	21	.58	140	105	61
5	39	55	6.4	23	34	2.6	29	36	2.9
6	26	51	3.7	52	62	20	20	24	1.3
7	16	45	2.0	456	443	1050	16	21	.93
8	12	35	1.2	1420	978	7110	15	18	.74
9	14	29	1.1	260	192	149	16	14	.59
10	14	23	.88	215	224	157	16	12	.52
11	14	30	1.2	76	88	19	16	12	.51
12	10	25	.70	43	48	5.7	15	12	.51
13	11	25	.72	35	35	3.5	16	16	.65
14	10	24	.64	28	24	1.8	19	21	1.1
15	11	24	.71	24	15	1.0	15	18	.75
16	26	46	3.8	23	16	1.0	14	18	.69
17	12	21	.71	22	21	1.2	18	14	.67
18	9.9	25	.65	19	23	1.2	13	12	.44
19	9.0	28	.70	18	27	1.3	13	11	.37
20	7.2	30	.59	16	29	1.3	32	31	12
21	6.5	31	.54	25	36	4.4	74	52	16
22	6.3	32	.53	142	107	61	17	24	1.2
23	6.2	32	.54	28	22	1.8	15	20	.77
24	6.0	30	.48	95	113	36	13	15	.51
25	6.1	25	.41	31	31	3.1	12	13	.42
26	5.2	21	.30	19	19	1.0	11	12	.36
27	5.0	19	.26	41	53	6.6	11	11	.32
28	4.7	17	.22	29	33	2.7	11	10	.28
29	4.9	16	.21	21	29	1.7	11	9	.27
30	5.8	16	.25	35	50	5.3	11	8	.26
31	5.4	16	.22	---	---	---	11	8	.24
TOTAL	895.2	---	369.16	3263.0	---	8660.96	746	---	141.20

## RIO GRANDE DE LOIZA BASIN

301

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	13	9	.32	14	41	1.5	6.9	15	.28
2	12	10	.31	14	35	1.3	7.2	19	.36
3	11	10	.29	14	29	1.2	7.7	14	.29
4	10	10	.28	18	23	1.1	8.4	10	.25
5	550	431	2650	17	15	.71	16	36	1.7
6	699	325	858	46	46	12	8.4	29	.67
7	140	113	45	34	56	5.7	49	50	21
8	52	71	11	17	17	.82	37	33	4.1
9	35	43	4.3	14	12	.45	10	27	.76
10	111	61	26	14	13	.50	7.3	22	.45
11	37	20	2.0	15	13	.51	6.1	20	.34
12	27	16	1.2	12	13	.43	5.7	20	.31
13	31	12	.96	11	13	.37	5.7	17	.27
14	27	11	.82	11	13	.37	5.7	12	.19
15	20	12	.66	11	12	.36	15	22	1.1
16	19	12	.64	11	13	.37	7.7	17	.37
17	17	14	.65	8.9	15	.35	6.4	12	.20
18	16	14	.63	8.3	16	.35	8.9	8	.18
19	16	14	.59	8.3	17	.39	8.9	10	.23
20	16	14	.59	7.9	13	.28	6.8	10	.19
21	15	14	.57	8.0	10	.20	6.1	10	.17
22	15	14	.56	7.5	6	.12	7.5	10	.20
23	15	15	.60	7.8	5	.10	8.8	11	.24
24	16	20	.88	7.8	5	.11	6.4	12	.20
25	18	26	1.3	8.0	6	.13	5.8	13	.20
26	20	33	1.8	8.3	6	.15	5.4	13	.19
27	19	41	2.0	9.7	8	.21	5.1	13	.18
28	16	49	2.2	8.8	10	.24	5.0	13	.18
29	18	54	2.6	8.4	12	.27	4.8	13	.17
30	16	52	2.2	---	---	---	4.7	13	.16
31	14	46	1.7	---	---	---	4.6	14	.16
TOTAL	2041	---	3620.65	380.7	---	30.59	299.0	---	35.29

## RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	4.7	15	.19	16	822	30	448	410	1570
2	5.2	15	.21	168	130	136	224	335	273
3	4.7	12	.15	11	23	.68	31	77	7.4
4	4.4	8	.09	6.5	19	.34	190	190	169
5	4.3	8	.10	5.3	16	.22	103	118	44
6	4.3	10	.12	482	323	858	101	119	35
7	5.0	10	.14	102	120	52	258	253	389
8	5.5	11	.16	15	47	1.9	109	126	43
9	13	23	2.2	8.1	33	.74	46	65	8.9
10	22	38	3.3	6.7	21	.38	399	398	770
11	7.6	9	.19	13	21	.92	141	154	75
12	6.4	8	.15	10	12	.36	537	456	1210
13	9.1	9	.22	5.6	13	.19	180	185	101
14	7.2	10	.19	4.8	15	.19	167	172	92
15	7.9	11	.24	4.7	17	.22	40	59	7.2
16	6.6	14	.24	6.8	18	.30	160	83	98
17	5.7	24	.36	8.8	18	.44	111	71	26
18	5.6	30	.45	5.4	17	.24	25	34	2.6
19	78	111	43	4.7	17	.22	16	25	1.2
20	26	80	5.8	9.6	15	.38	14	24	.95
21	11	72	2.2	8.6	12	.30	68	81	31
22	7.4	70	1.4	5.1	12	.17	35	50	7.7
23	6.3	65	1.1	765	555	3190	76	99	29
24	5.8	57	.90	657	628	1850	14	54	2.3
25	5.3	49	.72	256	233	405	8.0	38	.85
26	5.0	42	.57	880	624	2930	5.9	29	.47
27	4.9	35	.46	122	84	30	5.2	28	.39
28	4.7	26	.34	41	55	6.3	4.6	24	.29
29	4.6	22	.28	25	28	2.0	3.8	19	.19
30	4.7	22	.27	20	11	.63	3.3	17	.14
31	---	---	---	153	152	261	---	---	---
TOTAL	292.9	---	65.74	3826.7	---	9759.12	3523.8	---	4995.58

RIO GRANDE DE LOIZA BASIN

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50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	3.0	15	.12	3.4	18	.16	14	20	.79
2	2.6	16	.11	4.1	13	.15	8.8	11	.25
3	2.4	17	.10	5.0	29	.38	9.4	11	.29
4	2.3	17	.10	4.3	43	.49	8.2	12	.27
5	2.2	17	.10	405	430	1070	7.4	12	.23
6	1.9	17	.09	36	52	6.5	21	31	2.7
7	1.7	17	.08	29	43	3.4	13	24	.92
8	2.1	18	.10	31	48	4.3	9.4	19	.48
9	3.2	22	.20	13	29	1.1	16	28	1.3
10	2.4	14	.09	11	20	.60	12	30	.97
11	2.1	11	.07	24	37	3.8	8.7	24	.57
12	2.3	12	.07	31	45	4.9	8.7	23	.54
13	1.5	12	.05	36	52	7.0	7.1	23	.44
14	1.4	14	.05	154	154	131	6.5	23	.42
15	1.6	17	.07	50	98	19	6.2	23	.38
16	2.5	19	.13	22	38	3.0	23	25	1.7
17	12	28	.93	30	45	4.4	122	219	105
18	5.0	12	.17	14	28	1.1	28	62	5.0
19	2.8	7	.05	11	25	.74	255	253	818
20	2.7	8	.07	11	21	.57	945	686	3980
21	5.6	13	.22	9.7	19	.52	819	578	2760
22	82	90	.41	8.7	20	.45	47	65	9.3
23	7.6	17	.39	8.2	20	.46	21	35	2.1
24	135	142	187	11	20	.59	23	40	2.7
25	38	53	9.0	8.9	22	.53	12	26	.84
26	9.0	18	.48	8.0	22	.46	9.9	21	.58
27	25	35	7.9	7.9	20	.43	9.1	19	.54
28	24	85	7.3	7.4	18	.36	11	21	.84
29	6.2	36	.61	7.3	16	.32	5.5	13	.19
30	4.1	29	.33	7.1	11	.21	20	35	3.9
31	3.4	24	.23	18	29	1.6	---	---	---
TOTAL	397.6	---	257.21	1027.0	---	1268.52	2506.9	---	7701.24
YEAR	19199.8		36905.26						

## RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
MAY 1992 06...	1155	1950	1780	9370	54	57	67

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
MAY 1992 06...	82	87	96	99	99.5	99.7	99.8

50055750 RIO GURABO BELOW EL MANGO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
03...	1406	129	170	59	97
JAN 1992					
06...	1015	724	166	324	95
MAR					
07...	1952	239	786	507	68
07...	2057	304	199	163	95
MAY					
01...	2343	412	799	888	94
06...	1130	843	1610	3670	94
06...	1700	1390	861	3230	97
JUN					
12...	0916	635	265	454	99
16...	0112	411	109	120	93
16...	1847	428	940	1080	87
AUG					
14...	1602	325	475	417	92
SEP					
17...	0406	350	417	395	88
21...	1030	156	156	66	92

## RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR

LOCATION.--Lat 18°12'58", long 65°55'34", Hydrologic Unit 21010005, on left bank at Highway 919, 0.5 mi (0.8 km) upstream from Quebrada Don Víctor, 1.7 mi (2.7 km) upstream from Río Gurabo and 1.0 mi (1.6 km) south of Juncos.

DRAINAGE AREA.--16.4 mi<sup>2</sup> (42.5 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1971 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 320 ft (98 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Minor diversion from public water supply tank, 0.5 mi upstream, during low flow. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate discharges (no stages were recorded) of major floods are as follows: Sept. 6, 1960, 37,100 ft<sup>3</sup>/s (1,050 m<sup>3</sup>/s), Oct. 9, 1970, 18,200 ft<sup>3</sup>/s (515 m<sup>3</sup>/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	8.1	17	13	10	6.9	5.6	6.2	115	14	13	21
2	190	9.2	17	11	9.4	7.8	6.6	42	87	13	25	16
3	104	8.4	22	9.7	9.5	7.9	4.7	7.2	34	13	21	19
4	29	8.7	36	9.4	12	9.2	4.6	5.2	27	12	17	15
5	29	13	19	1150	10	12	4.4	4.5	30	28	236	14
6	22	22	16	779	29	16	4.2	8.9	28	13	50	47
7	14	205	15	60	17	9.1	10	8.4	42	11	84	27
8	13	1340	15	29	11	9.6	5.0	6.0	83	11	46	18
9	14	206	14	23	10	7.5	5.0	4.7	84	13	26	48
10	16	133	14	25	16	7.1	5.7	4.6	80	10	31	17
11	38	44	13	18	12	6.4	8.1	6.4	109	16	24	15
12	16	31	14	16	10	6.4	8.8	7.7	157	13	29	13
13	15	26	13	16	9.4	6.5	5.8	4.4	138	9.2	23	13
14	13	20	13	15	10	6.8	6.4	4.3	95	9.1	29	12
15	18	17	12	14	12	9.3	9.8	6.8	64	8.9	25	12
16	17	17	14	14	11	6.5	5.3	34	43	10	20	47
17	23	16	13	14	9.2	10	5.6	11	40	41	21	125
18	16	15	11	14	9.1	10	13	6.7	29	15	17	33
19	17	15	11	12	9.0	7.0	26	5.7	25	22	15	201
20	12	15	13	12	8.2	11	7.8	14	34	22	20	970
21	e12	20	16	12	8.0	7.9	11	11	204	23	39	509
22	e15	52	11	11	8.1	8.2	5.9	5.5	50	89	16	56
23	e11	21	11	11	8.6	6.9	4.8	678	47	19	20	54
24	e11	113	11	12	9.4	6.5	4.3	458	27	16	80	36
25	10	29	10	13	8.5	5.7	4.0	103	22	23	20	30
26	9.1	20	11	16	8.3	6.7	3.8	801	20	18	18	25
27	7.4	72	11	12	8.1	6.3	3.4	56	19	16	18	26
28	6.9	26	10	12	7.7	5.9	3.5	33	17	16	16	27
29	9.5	24	10	12	7.4	5.0	3.5	25	15	14	18	22
30	16	20	10	11	---	4.9	4.1	23	15	13	15	22
31	8.0	---	14	10	---	5.0	---	20	---	13	33	---
TOTAL	855.9	2566.4	437	2386.1	307.9	242.0	200.7	2412.2	1780	564.2	1065	2490
MEAN	27.6	85.5	14.1	77.0	10.6	7.81	6.69	77.8	59.3	18.2	34.4	83.0
MAX	190	1340	36	1150	29	16	26	801	204	89	236	970
MIN	6.9	8.1	10	9.4	7.4	4.9	3.4	4.3	15	8.9	13	12
AC-FT	1700	5090	867	4730	611	480	398	4780	3530	1120	2110	4940
CFSM	1.68	5.22	.86	4.69	.65	.48	.41	4.74	3.62	1.11	2.09	5.06
IN.	1.94	5.82	.99	5.41	.70	.55	.46	5.47	4.04	1.28	2.42	5.65

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1992, BY WATER YEAR (WY)

	MEAN	81.9	94.3	59.1	23.1	17.7	19.6	15.3	54.9	50.3	46.1	64.4	79.5
MAX	293	461	550	77.0	47.9	39.7	41.7	268	188	163	231	255	
(WY)	1986	1988	1988	1992	1984	1973	1985	1985	1979	1981	1979	1979	
MIN	21.8	19.5	11.0	11.4	7.21	7.01	5.82	5.02	6.21	5.36	15.5	10.8	
(WY)	1984	1990	1990	1976	1974	1977	1991	1990	1977	1974	1980	1987	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1971 - 1992

ANNUAL TOTAL	9203.8	15307.4	50.8	
ANNUAL MEAN	25.2	41.8	121	1988
HIGHEST ANNUAL MEAN			17.1	1990
LOWEST ANNUAL MEAN			9100	Dec 8 1987
HIGHEST DAILY MEAN	1340	Nov 8	1.8	Jun 12 1990
LOWEST DAILY MEAN	3.2	May 2	2.6	May 19 1990
ANNUAL SEVEN-DAY MINIMUM	3.8	Apr 29	40000	Dec 8 1987
INSTANTANEOUS PEAK FLOW			25.63	Dec 8 1987
INSTANTANEOUS PEAK STAGE			1.4	Apr 21 1988
INSTANTANEOUS LOW FLOW			36790	
ANNUAL RUNOFF (AC-FT)	18260	30360	3.10	
ANNUAL RUNOFF (CFSM)	1.54	2.55	42.07	
ANNUAL RUNOFF (INCHES)	20.88	34.72	56	
10 PERCENT EXCEEDS	35	56	19	
50 PERCENT EXCEEDS	11	14	7.1	
90 PERCENT EXCEEDS	5.5	6.4		



## RIO GRANDE DE LOIZA BASIN

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50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS AUGUST 1981 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
MAR. 16	1033	6.23	280	25.0	JUN. 03	1316	30.9	210	27.0

## RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1983 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to September 1992.

INSTRUMENTATION.-- Automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,600 mg/L Oct. 06, 1985; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 46,300 tons (42,000 tonnes) May 18, 1985; Minimum daily mean, 0.01 ton (0.01 tonne) several days.

EXTREMES FOR WATER YEAR 1992.--

SEDIMENT CONCENTRATION: Maximum daily mean, 945 mg/L Nov. 08, 1991; Minimum daily mean, 4 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 10,500 tons (9,500 tonnes) Jan. 05, 1992; Minimum daily mean, 0.10 ton (0.09 tonne) several days.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	124	163	76	8.1	30	.67	17	35	1.6
2	190	240	138	9.2	30	.73	17	24	1.0
3	104	143	50	8.4	30	.70	22	29	2.3
4	29	53	4.3	8.7	30	.75	36	76	8.1
5	29	56	5.5	13	29	1.2	19	50	2.5
6	22	46	3.0	22	40	3.4	16	45	1.9
7	14	31	1.2	205	260	275	15	42	1.7
8	13	23	.77	1340	945	7590	15	42	1.7
9	14	18	.69	206	221	168	14	41	1.6
10	16	36	1.7	133	181	83	14	35	1.3
11	38	74	11	44	51	6.6	13	28	.97
12	16	47	2.1	31	19	1.6	14	22	.76
13	15	35	1.3	26	13	.95	13	14	.48
14	13	24	.88	20	10	.56	13	8	.29
15	18	20	1.0	17	10	.45	12	9	.29
16	17	36	1.8	17	10	.42	14	11	.39
17	23	48	3.5	16	8	.33	13	14	.45
18	16	41	1.8	15	6	.24	11	17	.49
19	17	35	1.7	15	5	.19	11	18	.54
20	12	28	.91	15	5	.20	13	18	.64
21	e12	18	e.53	20	28	2.5	16	15	.67
22	e15	10	e.40	52	120	20	11	13	.37
23	e11	10	e.30	21	71	4.1	11	11	.31
24	e11	14	e.43	113	187	88	11	8	.24
25	10	25	.68	29	78	7.2	10	8	.22
26	9.1	34	.81	20	14	.75	11	7	.22
27	7.4	40	.85	72	184	83	11	7	.20
28	6.9	41	.78	26	59	4.4	10	10	.25
29	9.5	40	1.1	24	55	3.8	10	21	.55
30	16	41	2.0	20	45	2.4	10	31	.87
31	8.0	30	.70	---	---	---	14	31	1.2
TOTAL	855.9	---	315.73	2566.4	---	8351.14	437	---	34.10

e Estimated

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	13	30	1.1	10	20	.52	6.9	52	.98
2	11	27	.75	9.4	20	.52	7.8	52	1.1
3	9.7	22	.58	9.5	20	.52	7.9	55	1.3
4	9.4	18	.45	12	23	.74	9.2	58	1.6
5	1150	762	10500	10	35	.95	12	64	2.1
6	779	510	1520	29	61	6.0	16	70	3.2
7	60	92	17	17	58	3.0	9.1	71	1.8
8	29	50	4.1	11	47	1.4	9.6	74	1.9
9	23	38	2.5	10	48	1.3	7.5	75	1.6
10	25	29	1.9	16	50	2.2	7.1	73	1.4
11	18	27	1.3	12	48	1.6	6.4	69	1.2
12	16	17	.76	10	42	1.1	6.4	55	.95
13	16	10	.42	9.4	34	.85	6.5	36	.63
14	15	10	.37	10	25	.64	6.8	28	.55
15	14	14	.51	12	20	.63	9.3	22	.56
16	14	18	.65	11	28	.81	6.5	20	.36
17	14	21	.80	9.2	41	.99	10	25	.84
18	14	21	.77	9.1	51	1.2	10	22	.67
19	12	19	.59	9.0	56	1.3	7.0	15	.28
20	12	17	.51	8.2	48	1.0	11	35	1.4
21	12	17	.51	8.0	33	.68	7.9	59	1.3
22	11	19	.57	8.1	25	.53	8.2	60	1.3
23	11	21	.60	8.6	34	.77	6.9	66	1.3
24	12	25	.75	9.4	51	1.3	6.5	73	1.3
25	13	28	.94	8.5	68	1.6	5.7	73	1.1
26	16	28	1.2	8.3	77	1.6	6.7	62	1.2
27	12	27	.88	8.1	67	1.4	6.3	34	.57
28	12	26	.88	7.7	54	1.1	5.9	30	.49
29	12	24	.85	7.4	52	1.0	5.0	30	.40
30	11	22	.66	---	---	---	4.9	30	.40
31	10	22	.58	---	---	---	5.0	30	.43
TOTAL	2386.1	---	12063.48	307.9	---	37.25	242.0	---	34.21

## RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	5.6	30	.48	6.2	13	.28	115	124	155
2	6.6	33	.54	42	112	17	87	133	45
3	4.7	35	.48	7.2	26	.61	34	55	5.8
4	4.6	37	.45	5.2	12	.16	27	30	2.3
5	4.4	42	.47	4.5	11	.13	30	50	4.7
6	4.2	47	.57	8.9	18	.51	28	37	2.6
7	10	50	1.4	8.4	17	.42	42	68	9.4
8	5.0	35	.50	6.0	9	.14	83	137	49
9	5.0	32	.48	4.7	11	.14	84	125	36
10	5.7	39	.58	4.6	26	.32	80	109	33
11	8.1	44	.99	6.4	38	.66	109	153	56
12	8.8	33	.76	7.7	51	1.0	157	200	136
13	5.8	23	.40	4.4	54	.63	138	179	101
14	6.4	11	.20	4.3	51	.62	95	136	39
15	9.8	20	.61	6.8	50	.89	64	94	17
16	5.3	12	.17	34	92	15	43	38	4.3
17	5.6	12	.19	11	96	3.5	40	47	5.9
18	13	21	3.2	6.7	62	1.1	29	46	3.6
19	26	46	6.0	5.7	47	.70	25	30	1.9
20	7.8	17	.35	14	43	2.0	34	101	9.1
21	11	42	1.2	11	38	1.3	204	586	533
22	5.9	43	.65	5.5	50	.73	50	78	12
23	4.8	33	.45	678	513	4190	47	68	11
24	4.3	23	.26	458	382	887	27	27	2.0
25	4.0	15	.15	103	131	142	22	21	1.2
26	3.8	11	.11	801	630	4750	20	13	.67
27	3.4	10	.10	56	89	14	19	8	.40
28	3.5	10	.10	33	66	6.1	17	10	.43
29	3.5	10	.10	25	58	4.0	15	14	.58
30	4.1	10	.11	23	50	3.1	15	19	.72
31	---	---	---	20	39	2.1	---	---	---
TOTAL	200.7	---	22.05	2412.2	---	10046.14	1780	---	1278.60

RIO GRANDE DE LOIZA BASIN

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50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	14	20	.71	13	4	.15	21	33	2.2
2	13	19	.62	25	39	3.9	16	13	.55
3	13	18	.58	21	37	2.5	19	10	.50
4	12	17	.51	17	15	1.0	15	8	.34
5	28	55	4.7	236	514	419	14	8	.32
6	13	37	1.3	50	77	13	47	64	15
7	11	25	.72	84	116	43	27	40	3.8
8	11	16	.46	46	60	8.4	18	12	.59
9	13	7	.25	26	40	2.8	48	76	14
10	10	4	.12	31	55	5.4	17	17	.77
11	16	24	1.4	24	40	2.4	15	7	.27
12	13	24	.86	29	39	3.3	13	5	.20
13	9.2	13	.33	23	15	.84	13	5	.17
14	9.1	5	.12	29	39	4.1	12	5	.16
15	8.9	7	.18	25	32	2.4	12	5	.16
16	10	14	.35	20	26	1.3	47	61	27
17	41	65	13	21	41	2.4	125	165	101
18	15	30	1.3	17	39	1.8	33	43	4.0
19	22	38	2.6	15	35	1.5	201	231	250
20	22	40	2.8	20	34	3.1	970	697	7690
21	23	41	2.5	39	134	19	509	482	1430
22	89	119	52	16	64	2.9	56	90	16
23	19	27	1.6	20	36	2.1	54	84	16
24	16	19	.90	80	109	41	36	48	4.9
25	23	42	2.7	20	25	1.5	30	30	2.4
26	18	21	1.0	18	14	.68	25	30	2.0
27	16	9	.35	18	9	.44	26	35	2.4
28	16	6	.28	16	8	.36	27	34	2.8
29	14	5	.18	18	8	.35	22	10	.60
30	13	5	.18	15	8	.33	22	8	.48
31	13	4	.16	33	54	6.1	---	---	---
TOTAL	564.2	---	94.76	1065	---	597.05	2490	---	9588.61
YEAR	15307.4		42463.12						

## RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
JAN 1992							
05...	1937	8500	5640	129000	31	41	46
05...	2132	3800	7610	78100	23	28	33

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
JAN 1992							
05...	57	65	90	97	99	99.8	99.9
05...	42	51	63	71	76	85	96

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1991					
22...	1140	33	134	12	96
24...	1331	408	329	362	99
24...	1622	205	440	243	100
27...	0924	263	517	367	98
27...	0954	235	1190	755	99
JAN 1992					
05...	2252	2890	2230	17400	91
06...	1050	782	325	688	96
JUN					
01...	0015	623	4120	6940	65
02...	0055	179	391	189	95
08...	1300	205	122	68	92
12...	0948	230	833	517	99
21...	0320	712	1410	2700	99
21...	0455	466	2310	2910	99
SEP					
21...	1100	333	31	28	96

## RIO GRANDE DE LOIZA BASIN

50056900 QUEBRADA MAMEY NEAR GURABO, PR

LOCATION.--Lat 18°14'57", long 65°56'44", Hydrologic Unit 21010005, at left downstream side of bridge on Highway 189, 1.9 mi (3.0 km) southeast of Gurabo plaza, and 2.1 mi (3.4 km) northwest of Juncos plaza.

DRAINAGE AREA.--2.30 mi<sup>2</sup> (5.96 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 180 ft (55 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.52	4.0	.67	.53	.17	.14	.14	9.0	1.6	.29	e.23	e.37
2	3.7	5.0	.66	.51	.19	.14	.16	11	.79	.34	e.45	e.30
3	1.1	.94	.81	.49	.26	.17	.16	1.9	.59	.47	e.38	e.25
4	.47	.68	1.4	.53	.45	.22	.15	.94	.47	.53	e.31	e.28
5	.49	.64	.97	99	.21	.55	.15	.73	.45	.71	e4.0	e.26
6	.39	1.6	.80	78	.32	.27	.16	3.9	.74	.66	e.92	e.84
7	.31	24	.84	3.7	.29	.25	.22	2.5	1.2	.65	e1.5	e.45
8	.28	36	.65	.91	.20	.26	.29	1.2	1.3	.71	e.80	e.33
9	.29	5.4	.70	.72	.21	.24	.32	.97	.89	.49	e.48	e.86
10	.31	2.2	.66	1.8	.45	.21	.52	.89	1.2	.40	e.54	e.31
11	.29	1.4	.73	.45	.30	.21	.39	1.0	1.1	.50	e.44	e.28
12	.32	1.1	.91	.29	.19	.20	.34	1.1	4.0	.81	e.52	e.24
13	.30	1.1	1.0	.25	.17	.19	.31	1.2	.89	.61	e.42	e.24
14	.25	.98	.75	.21	.27	.26	.27	1.1	.52	e.51	e.52	e.22
15	.24	.94	.62	.19	.21	.47	.29	1.0	.32	e.43	e.45	e.22
16	.29	.90	.64	.20	.19	.35	.27	1.7	.25	e.38	e.37	e1.0
17	.45	1.6	.63	.17	.17	.36	.61	1.8	.23	e.74	e.38	e2.2
18	.53	.84	.56	.15	.17	.44	.46	15	.22	e.28	e.32	e.62
19	.65	.72	.63	.16	.18	.40	.43	7.9	.21	e.39	e.28	e3.0
20	.72	.69	.87	.16	.17	.34	.48	5.8	.23	e.41	e.40	e10
21	.67	1.1	.68	.16	.16	.35	.41	5.9	10	e.60	e.70	e8.0
22	.67	7.2	.49	.17	.17	.67	.31	2.8	1.1	e1.6	e.30	e4.0
23	.67	1.7	.47	.16	.20	.34	.32	52	.56	e.35	e.35	e1.0
24	.46	1.1	.48	.15	.27	.24	.23	48	.28	e.29	e1.5	e.90
25	.40	.91	.50	.17	.29	.21	.19	16	.22	e.41	e.36	e.64
26	.44	.88	.50	.24	.22	.20	.21	93	.21	e.33	e.33	e.54
27	.47	6.0	.52	.19	.20	.19	.25	21	.24	e.29	e.32	e.46
28	.49	3.2	.51	.16	.16	.18	.21	8.7	.23	e.29	e.30	e.48
29	2.5	.87	.53	.15	.15	.18	.20	4.3	.25	e.29	e.33	e.47
30	12	.72	.52	.14	---	.15	.49	2.6	.25	e.26	e.28	e.40
31	3.0	---	.52	.15	---	.13	---	1.7	---	e.24	e.60	---
TOTAL	33.67	114.41	21.22	190.26	6.59	8.51	8.94	326.63	30.54	15.26	19.08	39.16
MEAN	1.09	3.81	.68	6.14	.23	.27	.30	10.5	1.02	.49	.62	1.31
MAX	12	36	1.4	99	.45	.67	.61	93	10	1.6	4.0	10
MIN	.24	.64	.47	.14	.15	.13	.14	.73	.21	.24	.23	.22
AC-FT	67	227	42	377	13	17	18	648	61	30	38	78
CFSM	.47	1.66	.30	2.67	.10	.12	.13	4.58	.44	.21	.27	.57
IN.	.54	1.85	.34	3.08	.11	.14	.14	5.28	.49	.25	.31	.63

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1992, BY WATER YEAR (WY)

	MEAN	7.24	7.81	3.35	1.77	1.58	1.25	1.18	5.52	2.36	1.50	2.82	4.18
MAX	24.4	21.6	13.1	6.14	3.89	3.57	3.55	19.7	11.3	4.31	11.0	14.2	
(WY)	1986	1988	1988	1992	1984	1985	1986	1985	1987	1988	1988	1989	
MIN	1.09	1.13	.68	.57	.23	.27	.30	.34	.68	.49	.62	.63	
(WY)	1992	1990	1992	1984	1992	1992	1992	1990	1985	1992	1992	1986	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1984 - 1992

ANNUAL TOTAL	504.15	814.27	
ANNUAL MEAN	1.38	2.22	3.41
HIGHEST ANNUAL MEAN			5.39
LOWEST ANNUAL MEAN			1.23
HIGHEST DAILY MEAN	38	May 11	343
LOWEST DAILY MEAN	.21	Sep 26	.13
ANNUAL SEVEN-DAY MINIMUM	.27	Sep 3	.15
INSTANTANEOUS PEAK FLOW			3380
INSTANTANEOUS PEAK STAGE			11.78
INSTANTANEOUS LOW FLOW			.10
ANNUAL RUNOFF (AC-FT)	1000	1620	2470
ANNUAL RUNOFF (CFSM)	.60	.97	1.48
ANNUAL RUNOFF (INCHES)	8.15	13.17	20.12
10 PERCENT EXCEEDS	1.6	2.7	3.2
50 PERCENT EXCEEDS	.65	.46	.83
90 PERCENT EXCEEDS	.30	.19	.34



## RIO GRANDE DE LOIZA BASIN

50056900 QUEBRADA MAMEY NEAR GURABO, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS MARCH 1984 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
JAN. 13	1046	0.26	420	26.0	JUN. 04	0849	0.60	490	26.5
MAR. 24	1033	0.28	490	26.5	JUN. 23	1236	0.78	400	28.0

## RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO, PR

LOCATION---Lat 18°15'30", long 65°58'05", Hydrologic Unit 21010005, on left bank, at bridge on Highway 181, 0.3 mi (0.5 km) east of Gurabo, and 4.5 mi (7.6 km) upstream from Río Grande de Loíza.

DRAINAGE AREA--60.2 mi<sup>2</sup> (155.9 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD--1958 (occasional low-flow measurements only), January to September 1959 (monthly measurements only), October 1959 to current year.

GAGE--Water-stage recorder and crest-stage gage. Datum of gage is 131.58 ft (40.106 m) above mean sea level. Prior to Oct. 1, 1989 datum 5.0 ft (1.5 m) higher.

REMARKS--Records fair. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD--Approximate elevation to gage datum of the Aug. 4, 1945 flood, as pointed out by local residents, 26.6 ft (8.1 m), datum then is use.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	256	29	39	23	32	23	19	29	418	39	21	57
2	602	57	41	20	31	22	23	286	440	32	21	40
3	370	33	40	18	32	26	21	56	112	29	43	42
4	147	29	151	16	38	21	20	26	125	29	27	37
5	105	34	51	1940	42	46	20	19	151	42	569	32
6	110	41	37	2470	53	35	20	442	149	31	177	46
7	75	564	31	339	97	29	33	235	228	26	142	107
8	62	2740	29	162	47	70	27	65	263	29	146	47
9	58	501	28	121	37	34	23	40	255	32	84	96
10	63	336	27	151	42	23	39	25	405	28	74	63
11	60	114	27	105	44	19	25	30	316	28	64	47
12	40	73	27	80	33	17	23	50	627	38	109	43
13	34	61	27	73	29	16	22	26	332	28	86	37
14	34	49	26	73	29	16	22	21	242	23	182	33
15	33	41	27	62	31	27	24	23	158	23	167	32
16	37	39	24	56	33	26	23	35	130	25	72	69
17	40	38	27	52	28	19	19	59	216	83	81	312
18	28	33	24	50	25	31	19	52	96	60	52	135
19	30	29	22	43	25	26	65	68	64	35	42	330
20	23	27	25	41	25	21	77	39	60	44	40	1520
21	21	30	66	40	23	27	42	51	281	50	69	1440
22	26	174	30	37	24	24	25	26	168	177	37	205
23	20	54	24	37	24	24	19	1010	148	71	40	129
24	18	140	22	37	27	20	16	1950	88	82	97	111
25	19	76	19	41	29	17	14	350	62	142	53	80
26	16	41	18	49	25	16	9.7	1810	55	59	39	66
27	15	98	19	43	26	16	11	318	51	38	40	60
28	14	62	18	38	26	18	11	157	49	87	33	63
29	36	47	18	38	25	17	7.3	101	52	34	35	75
30	53	43	17	37	---	17	16	79	49	25	31	67
31	39	---	19	33	---	17	---	93	---	24	64	---
TOTAL	2484	5633	1000	6325	982	760	735.0	7571	5790	1493	2737	5421
MEAN	80.1	188	32.3	204	33.9	24.5	24.5	244	193	48.2	88.3	181
MAX	602	2740	151	2470	97	70	77	1950	627	177	569	1520
MIN	14	27	17	16	23	16	7.3	19	49	23	21	32
AC-FT	4930	11170	1980	12550	1950	1510	1460	15020	11480	2960	5430	10750
CFSM	1.33	3.12	.54	3.39	.56	.41	.41	4.06	3.21	.80	1.47	3.00
IN.	1.53	3.48	.62	3.91	.61	.47	.45	4.68	3.58	.92	1.69	3.35

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1992, BY WATER YEAR (WY)

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	210	208	164	62.7	46.4	40.1	42.3	155	136	117	177	228																					
MAX	1414	1045	863	204	131	97.5	93.9	746	468	371	610	1225																					
(WY)	1971	1988	1988	1992	1989	1985	1985	1985	1970	1979	1979	1960																					
MIN	16.0	37.3	10.7	16.4	12.6	11.2	15.8	12.7	16.8	20.9	24.8	8.76																					
(WY)	1968	1974	1968	1968	1968	1965	1967	1990	1972	1967	1967	1967																					

## SUMMARY STATISTICS

	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1960 - 1992
ANNUAL TOTAL	22858.1	40931.0	
ANNUAL MEAN	62.6	112	134
HIGHEST ANNUAL MEAN			286
LOWEST ANNUAL MEAN			42.2
HIGHEST DAILY MEAN	2740	2740	21100
LOWEST DAILY MEAN	7.5	7.3	4.8
ANNUAL SEVEN-DAY MINIMUM	9.0	12	5.5
INSTANTANEOUS PEAK FLOW		10100	74600
INSTANTANEOUS PEAK STAGE		20.87	27.70
INSTANTANEOUS LOW FLOW			4.5
ANNUAL RUNOFF (AC-FT)	45340	81190	97140
ANNUAL RUNOFF (CFSM)	1.04	1.86	2.23
ANNUAL RUNOFF (INCHES)	14.12	25.29	30.26
10 PERCENT EXCEEDS	109	189	215
50 PERCENT EXCEEDS	30	39	50
90 PERCENT EXCEEDS	13	19	19

## RIO GRANDE DE LOIZA BASIN

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50057000 RIO GURABO AT GURAGO, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS AUGUST 1981 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
MAR. 24	1209	19.6	320	27.0	JUN. 24	1017	85	230	28.5
JUN. 04	1042	74.1	280	28.0	JUL. 15	1148	22.1	330	30.0

RIO GRANDE DE LOIZA BASIN  
50057000 RIO GURABO AT GURABO--Continued  
WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1983 to September 1992.

INSTRUMENTATION.-- USD-49 and automatic sediment sampler.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 9,220 mg/L Nov 27, 1987; Minimum daily mean, 4 mg/L January 19,20,21, 1992.

SEDIMENT LOADS: Maximum daily mean, 686,000 tons (622,340 tonnes) Nov 27, 1987; Minimum daily mean, 0.14 ton (0.13 tonne) April 24, 1990.

## EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 726 mg/L September 16, 1992; minimum daily mean, 4 mg/L January 19,20,21, 1992.

SEDIMENT LOADS: Maximum daily mean, 6,560 tons (5,950 tonnes) January 05, 1992; minimum daily 0.31 ton (0.28 tonne) January 04, 1992.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	256	178	139	29	30	2.5	39	25	2.6
2	602	415	767	57	48	8.0	41	14	1.5
3	370	232	272	33	31	2.7	40	11	1.2
4	147	97	40	29	25	2.0	151	108	58
5	105	79	23	34	19	1.7	51	23	3.5
6	110	82	25	41	24	3.3	37	14	1.5
7	75	59	12	564	358	847	31	14	1.2
8	62	48	8.0	2740	551	5670	29	13	.99
9	58	49	7.7	501	369	603	28	12	.86
10	63	56	9.6	336	240	252	27	11	.76
11	60	42	6.8	114	82	28	27	11	.74
12	40	32	3.5	73	40	8.0	27	13	.96
13	34	28	2.7	61	25	4.0	27	15	1.1
14	34	24	2.2	49	18	2.3	26	13	.94
15	33	18	1.5	41	14	1.6	27	11	.77
16	37	16	1.5	39	14	1.5	24	10	.65
17	40	16	1.7	38	13	1.3	27	8	.60
18	28	18	1.3	33	11	1.0	24	9	.58
19	30	18	1.3	29	10	.79	22	11	.66
20	23	18	1.2	27	10	.73	25	17	1.3
21	21	16	.88	30	16	1.6	66	51	9.7
22	26	25	2.3	174	93	61	30	28	2.4
23	20	17	.88	54	28	4.2	24	15	1.0
24	18	13	.62	140	241	128	22	10	.59
25	19	13	.64	76	152	34	19	10	.53
26	16	13	.57	41	77	9.0	18	10	.49
27	15	13	.53	98	79	29	19	10	.51
28	14	13	.49	62	94	16	18	10	.50
29	36	29	5.9	47	65	8.2	18	10	.47
30	53	44	7.4	43	45	5.2	17	10	.46
31	39	34	4.4	---	---	---	19	9	.46
TOTAL	2484	---	1351.61	5633	---	7737.62	1000	---	97.52

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	23	8	.52	32	11	.95	23	18	1.1
2	20	8	.44	31	15	1.3	22	18	1.0
3	18	7	.37	32	19	1.6	26	18	1.2
4	16	7	.31	38	20	2.1	21	18	1.1
5	1940	303	6560	42	20	2.2	46	22	2.6
6	2470	461	4420	53	38	7.5	35	25	2.4
7	339	94	97	97	74	21	29	24	1.9
8	162	49	23	47	38	5.0	70	54	11
9	121	29	9.6	37	31	3.1	34	29	2.9
10	151	41	19	42	24	2.7	23	21	1.3
11	105	20	5.8	44	20	2.3	19	20	1.0
12	80	15	3.3	33	19	1.7	17	20	.94
13	73	10	2.0	29	19	1.5	16	20	.85
14	73	9	1.7	29	19	1.5	16	19	.83
15	62	8	1.4	31	20	1.6	27	25	1.9
16	56	7	1.1	33	21	1.9	26	23	1.6
17	52	5	.77	28	22	1.6	19	20	1.0
18	50	5	.67	25	18	1.2	31	19	1.5
19	43	4	.55	25	15	.96	26	19	1.3
20	41	4	.44	25	16	1.0	21	20	1.2
21	40	4	.48	23	19	1.2	27	20	1.5
22	37	8	.78	24	25	1.6	24	20	1.2
23	37	14	1.3	24	30	1.9	24	19	1.1
24	37	16	1.6	27	31	2.2	20	18	.95
25	41	14	1.5	29	27	2.0	17	15	.69
26	49	11	1.5	25	21	1.5	16	12	.53
27	43	10	1.2	26	17	1.1	16	13	.59
28	38	9	.92	26	17	1.1	18	16	.79
29	38	10	.95	25	18	1.2	17	18	.83
30	37	10	.97	---	---	---	17	18	.81
31	33	10	.90	---	---	---	17	18	.84
TOTAL	6325	---	11160.07	982	---	76.51	760	---	48.45

## RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	19	16	.83	29	68	7.2	418	300	684
2	23	15	.94	286	203	204	440	294	525
3	21	17	.99	56	64	10	112	84	27
4	20	19	1.0	26	47	3.3	125	93	39
5	20	20	1.1	19	30	1.5	151	123	62
6	20	21	1.1	442	281	792	149	107	44
7	33	28	2.6	235	170	169	228	177	191
8	27	25	1.9	65	33	6.3	263	196	163
9	23	21	1.3	40	19	2.0	255	187	142
10	39	692	100	25	17	1.2	405	344	461
11	25	28	1.9	30	18	1.5	316	245	224
12	23	28	1.8	50	41	6.0	627	389	984
13	22	28	1.7	26	27	2.0	332	236	246
14	22	29	1.7	21	21	1.2	242	175	119
15	24	30	2.0	23	21	1.2	158	109	49
16	23	31	2.0	35	29	3.6	130	97	44
17	19	31	1.5	59	46	8.3	216	159	111
18	19	28	1.4	52	76	12	96	73	20
19	65	54	12	68	66	21	64	52	9.3
20	77	73	17	39	36	4.2	60	49	8.3
21	42	55	6.4	51	41	6.1	281	200	196
22	25	51	3.6	26	23	1.7	168	120	65
23	19	47	2.4	1010	377	2200	148	122	57
24	16	40	1.7	1950	657	4620	88	71	18
25	14	35	1.3	350	261	303	62	47	7.9
26	9.7	36	.99	1810	634	3230	55	41	6.0
27	11	36	1.0	318	230	216	51	36	5.0
28	11	38	1.1	157	59	28	49	31	4.2
29	7.3	40	.82	101	32	8.5	52	27	3.8
30	16	48	2.0	79	38	8.0	49	25	3.3
31	---	---	---	93	54	23	---	---	---
TOTAL	735.0	---	176.07	7571	---	11901.8	5790	---	4518.8

RIO GRANDE DE LOIZA BASIN

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50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	39	25	2.7	21	21	1.3	57	45	7.2
2	32	26	2.3	21	22	1.3	40	34	3.8
3	29	29	2.3	43	37	5.2	42	35	3.8
4	29	31	2.4	27	31	2.6	37	39	4.0
5	42	37	4.3	569	474	1470	32	37	3.1
6	31	37	3.1	177	126	68	46	44	7.2
7	26	40	2.9	142	99	50	107	73	27
8	29	40	3.0	146	108	46	47	30	3.8
9	32	38	3.2	84	57	14	96	71	20
10	28	36	2.8	74	49	11	63	57	9.8
11	28	35	2.7	64	54	9.7	47	44	5.5
12	38	38	3.6	109	81	25	43	35	4.0
13	28	39	3.0	86	64	16	37	29	2.9
14	23	38	2.4	182	133	113	33	24	2.1
15	23	40	2.5	167	126	74	32	25	2.0
16	25	42	2.7	72	57	11	69	726	69
17	83	69	20	81	64	15	312	223	233
18	60	48	8.8	52	45	6.7	135	103	40
19	35	30	2.9	42	36	4.3	330	273	609
20	44	36	4.5	40	34	3.8	1520	499	3300
21	50	40	5.6	69	34	8.2	1440	619	3030
22	177	131	98	37	25	2.5	205	149	91
23	71	89	19	40	34	3.8	129	83	30
24	82	66	37	97	90	32	111	86	27
25	142	109	55	53	110	17	80	64	14
26	59	57	9.1	39	62	6.5	66	52	9.2
27	38	55	5.9	40	45	5.0	60	46	7.4
28	87	72	19	33	33	3.0	63	49	8.6
29	34	53	5.0	35	31	3.0	75	59	16
30	25	46	3.2	31	29	2.4	67	54	11
31	24	31	2.1	64	51	10	---	---	---
TOTAL	1493	---	341.0	2737	---	2041.3	5421	---	7601.4
YEAR	40931.0		47052.15						

## RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
NOV 1991							
08...	1210	3900	1210	12700	49	--	53
JAN 1992							
05...	2057	8360	1180	26600	63	69	78

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
NOV 1991							
08...	59	76	93	95	97	99	100
JAN 1992							
05...	83	83	99.7	99.8	99.9	99.9	100



## RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1991					
08...	1040	6500	795	14000	90
08...	1140	4740	659	8440	91
08...	1626	1170	520	1640	87
JAN 1992					
05...	1757	2150	300	1740	99
05...	2257	9540	1050	27000	99
MAR					
12...	0905	17	41	2	99
MAY					
21...	0918	59	114	18	99
24...	1523	764	202	416	92
JUN					
01...	2126	643	422	732	97
02...	0041	1430	447	1720	97
11...	0828	260	275	193	92
AUG					
05...	0821	1990	2280	12300	84
05...	1036	1390	1100	4120	96
05...	1306	752	560	1140	95
25...	0711	55	143	21	96
SEP					
01...	0806	44	1290	153	98
19...	2106	1346	1570	5700	86
19...	2236	1045	860	2420	95

## RIO GRANDE DE LOIZA BASIN

50057025 RIO GURABO NEAR GURABO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'56", long 65°59'04", at bridge on Highway 941, 1.2 mi (1.9 km) west-northwest from gaging station 50057000, and 1.0 mi (1.6 km) northwest of Gurabo plaza.

DRAINAGE AREA.--62.8 mi<sup>2</sup> (162.7 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991										
08...	0930	338	7.0	28.0	1.2	1.6	20	62	2900	1000
DEC 06...	0905	303	7.0	24.5	23	2.8	42	28	2000	K820
FEB 1992										
13...	0830	382	6.6	25.5	0.60	2.1	26	15	K660	260
MAY 05...	0850	327	6.6	25.5	13	1.8	22	29	2100	650
JUN 10...	0915	260	7.0	27.0	130	4.2	60	33	30000	21000
AUG 19...	1245	334	7.1	31.2	9.3	2.5	32	21	5800	200

DATE	HARDNESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY, WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
08...	150	41	12	53	2	6.9	110	<0.5	57	63
DEC 06...	--	--	--	--	--	--	100	--	--	--
FEB 1992										
13...	--	--	--	--	--	--	130	--	--	--
MAY 05...	130	39	8.5	14	0.5	4.4	93	<0.5	24	34
JUN 10...	--	--	--	--	--	--	80	--	--	--
AUG 19...	110	24	11	25	1	4.6	80	--	18	29

DATE	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)
OCT 1991										
08...	0.20	32	331	9	1.33	0.070	1.40	0.150	0.65	0.80
DEC 06...	--	--	--	36	0.880	0.120	1.00	0.370	0.73	1.1
FEB 1992										
13...	--	--	--	10	0.810	0.100	0.910	0.710	0.59	1.3
MAY 05...	0.80	24	204	30	0.860	0.140	1.00	0.480	0.52	1.0
JUN 10...	--	--	--	145	0.750	0.050	0.800	0.610	0.69	1.3
AUG 19...	0.20	27	203	17	1.13	0.070	1.20	0.270	0.53	0.80

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

## RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR

LOCATION.--Lat 18°17'41", long 66°02'44", Hydrologic Unit 21010005, at right bank, off road 798, upstream side of bridge on Highway 52, .5 mi (.8 km) northeast from Escuela Segunda Unidad de Francisco Valdés, and .8 mi (1.3 km) north of La Barra.

DRAINAGE AREA.--7.53 mi<sup>2</sup> (19.50 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	11	5.9	5.0	8.4	6.7	4.5	58	10	3.8	3.8	5.7
2	4.9	7.5	5.9	5.0	8.4	6.7	4.5	55	7.0	5.3	2.9	5.1
3	4.5	5.4	11	4.7	8.4	6.6	4.5	12	5.9	4.9	3.5	5.1
4	4.6	4.8	7.9	4.7	8.4	6.2	4.4	7.7	17	4.9	11	9.4
5	4.8	4.6	6.4	241	7.8	6.2	3.6	6.2	6.2	3.5	68	12
6	4.4	4.4	6.0	145	7.8	6.1	3.1	11	5.6	3.5	15	61
7	4.1	9.5	5.6	32	7.8	5.7	6.6	6.4	27	3.2	4.6	65
8	4.1	16	5.5	20	7.8	5.7	4.6	4.5	22	4.5	3.5	19
9	4.1	8.4	5.7	15	7.8	5.7	4.1	5.2	86	5.3	266	12
10	4.1	5.2	5.5	29	8.9	5.7	4.1	4.3	18	4.9	33	9.7
11	4.0	4.5	5.3	16	7.7	5.7	4.1	3.5	8.9	5.7	17	9.1
12	3.8	4.4	5.3	13	6.7	5.7	3.6	3.0	10	4.5	8.8	9.4
13	3.8	4.8	5.1	16	6.7	5.7	3.6	2.7	6.3	4.9	6.3	24
14	3.8	4.3	5.6	11	8.5	5.6	3.7	2.7	5.4	5.3	15	7.3
15	3.9	4.3	5.5	12	9.0	5.8	3.5	2.5	4.9	5.3	6.8	4.4
16	4.0	4.7	5.0	31	7.8	5.3	3.8	49	4.9	4.5	4.5	5.9
17	3.8	4.3	5.0	25	7.2	8.2	4.2	6.5	4.9	4.1	4.0	18
18	4.9	4.2	5.0	13	7.2	7.1	4.0	6.7	5.2	4.1	3.5	5.1
19	3.9	3.9	5.0	11	7.2	5.8	4.7	4.5	5.0	3.5	3.5	20
20	3.7	3.9	12	11	7.2	5.3	5.7	4.5	4.8	3.2	3.5	22
21	3.7	16	6.1	9.8	7.4	5.4	3.5	3.8	21	3.2	11	25
22	6.2	17	5.0	9.7	7.6	5.5	3.5	3.2	5.7	3.2	4.6	5.4
23	4.2	32	4.8	9.1	7.8	4.8	3.5	50	4.9	3.2	3.4	3.6
24	3.7	15	4.7	9.9	7.8	4.5	3.5	52	4.9	4.5	3.2	3.1
25	3.7	7.3	4.7	9.5	7.8	4.3	3.2	20	4.8	3.2	3.0	2.9
26	3.7	7.1	4.8	9.4	7.8	4.5	2.9	134	4.1	2.4	3.1	2.9
27	3.6	8.1	5.4	8.4	12	4.5	2.7	39	4.1	2.2	3.2	2.8
28	3.5	6.9	4.9	8.6	7.2	9.8	2.7	15	4.1	2.2	2.9	2.5
29	5.8	6.2	4.9	9.1	7.2	8.1	8.0	14	3.9	2.4	2.7	2.4
30	15	5.9	4.8	8.4	---	5.0	16	8.9	3.8	2.4	5.0	6.6
31	4.8	---	5.0	8.4	---	4.5	---	7.3	---	3.5	7.7	---
TOTAL	142.6	241.6	179.3	760.7	229.3	182.4	134.4	603.1	326.3	121.3	534.0	386.4
MEAN	4.60	8.05	5.78	24.5	7.91	5.88	4.48	19.5	10.9	3.91	17.2	12.9
MAX	15	32	12	241	12	9.8	16	134	86	5.7	266	65
MIN	3.5	3.9	4.7	4.7	6.7	4.3	2.7	2.5	3.8	2.2	2.7	2.4
AC-FT	283	479	356	1510	455	362	267	1200	647	241	1060	766
CFSM	.61	1.07	.77	3.26	1.05	.78	.59	2.58	1.44	.52	2.29	1.71
IN.	.70	1.19	.89	3.76	1.13	.90	.66	2.98	1.61	.60	2.64	1.91

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1992, BY WATER YEAR (WY)

	1990	1991	1992	1990	1991	1992	1990	1991	1992	1990	1991	1992
MEAN	22.0	7.61	8.89	15.7	10.5	5.84	4.20	10.8	7.77	7.84	9.56	8.29
MAX	39.4	8.05	12.0	24.5	13.2	5.88	4.57	19.5	10.9	16.2	17.2	12.9
(WY)	1991	1992	1991	1992	1991	1992	1991	1992	1992	1991	1992	1992
MIN	4.60	7.18	5.78	6.76	7.91	5.80	3.53	3.32	4.06	3.40	4.36	5.62
(WY)	1992	1991	1992	1991	1992	1991	1990	1990	1990	1990	1990	1991

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1990 - 1992

ANNUAL TOTAL	2896.9	3841.4	
ANNUAL MEAN	7.94	10.5	
HIGHEST ANNUAL MEAN			10.9
LOWEST ANNUAL MEAN			11.4
HIGHEST DAILY MEAN	140	266	292
LOWEST DAILY MEAN	2.9	2.2	2.2
ANNUAL SEVEN-DAY MINIMUM	3.3	2.6	2.6
INSTANTANEOUS PEAK FLOW		1700	3830
INSTANTANEOUS PEAK STAGE		16.46	20.55
ANNUAL RUNOFF (AC-FT)	5750	7620	7910
ANNUAL RUNOFF (CFSM)	1.05	1.39	1.45
ANNUAL RUNOFF (INCHES)	14.31	18.98	19.71
10 PERCENT EXCEEDS	11	16	14
50 PERCENT EXCEEDS	5.2	5.4	5.0
90 PERCENT EXCEEDS	3.8	3.5	3.3

## RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.-- OCTOBER 1990 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
MAR. 17	1321	10.3	340	24.0	JUN. 11	1153	7.60	310	27.0
MAY 22	1236	3.21	310	27.5					

## RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: March 1990 to September 1992.

INSTRUMENTATION.-- Automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,770 mg/L Jan. 05, 1992; Minimum daily mean, 1 mg/L September 11, 1991

SEDIMENT LOADS: Maximum daily mean, 4,920 tons (4,460 tonnes) October 17, 1990; Minimum daily mean, 0.02 ton (0.02 tonne) several days.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,770 mg/L JAN. 05, 1992; Minimum daily mean, 3 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 4,230 tons (3,840 tonnes) Jan. 05, 1992; Minimum daily mean, 0.02 ton (0.02 tonne) several days.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	5.5	31	.49	11	61	5.7	5.9	9	.15
2	4.9	24	.31	7.5	25	.57	5.9	8	.12
3	4.5	17	.21	5.4	17	.24	11	35	1.8
4	4.6	9	.11	4.8	23	.29	7.9	32	.69
5	4.8	7	.09	4.6	30	.38	6.4	26	.45
6	4.4	7	.08	4.4	32	.39	6.0	25	.40
7	4.1	7	.08	9.5	36	1.3	5.6	25	.38
8	4.1	7	.07	16	60	3.8	5.5	25	.38
9	4.1	5	.06	8.4	31	.85	5.7	50	.76
10	4.1	4	.05	5.2	13	.18	5.5	13	.20
11	4.0	4	.05	4.5	7	.09	5.3	10	.13
12	3.8	8	.09	4.4	4	.05	5.3	10	.14
13	3.8	15	.15	4.8	4	.05	5.1	10	.14
14	3.8	21	.21	4.3	3	.04	5.6	11	.16
15	3.9	18	.19	4.3	3	.04	5.5	13	.17
16	4.0	14	.15	4.7	4	.06	5.0	13	.18
17	3.8	10	.11	4.3	7	.09	5.0	13	.18
18	4.9	14	.23	4.2	9	.10	5.0	16	.20
19	3.9	12	.12	3.9	11	.12	5.0	19	.24
20	3.7	17	.16	3.9	11	.11	12	50	3.6
21	3.7	22	.21	16	90	20	6.1	20	.36
22	6.2	29	.80	17	254	29	5.0	11	.14
23	4.2	15	.17	32	169	127	4.8	9	.11
24	3.7	18	.17	15	64	4.2	4.7	7	.09
25	3.7	14	.13	7.3	15	.31	4.7	7	.08
26	3.7	12	.11	7.1	8	.16	4.8	7	.09
27	3.6	9	.09	8.1	14	.31	5.4	8	.12
28	3.5	6	.06	6.9	11	.21	4.9	14	.18
29	5.8	12	.31	6.2	11	.19	4.9	20	.26
30	15	81	19	5.9	10	.16	4.8	26	.33
31	4.8	12	.17	---	---	---	5.0	31	.41
TOTAL	142.6	---	24.23	241.6	---	195.99	179.3	---	12.64

## RIO GRANDE DE LOIZA BASIN

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50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	5.0	24	.32	8.4	8	.19	6.7	7	.13
2	5.0	15	.19	8.4	10	.21	6.7	6	.11
3	4.7	7	.08	8.4	10	.23	6.6	5	.10
4	4.7	5	.06	8.4	11	.25	6.2	7	.12
5	241	1700	4230	7.8	13	.28	6.2	10	.17
6	145	1170	797	7.8	13	.27	6.1	12	.20
7	32	99	9.8	7.8	13	.28	5.7	10	.16
8	20	50	2.7	7.8	13	.28	5.7	8	.13
9	15	44	1.8	7.8	13	.28	5.7	6	.09
10	29	37	2.8	8.9	13	.30	5.7	4	.07
11	16	16	.70	7.7	14	.29	5.7	3	.05
12	13	9	.31	6.7	14	.26	5.7	3	.05
13	16	8	.38	6.7	15	.28	5.7	3	.04
14	11	7	.22	8.5	40	1.0	5.6	3	.04
15	12	5	.15	9.0	8	.19	5.8	3	.04
16	31	602	192	7.8	8	.18	5.3	3	.04
17	25	413	35	7.2	9	.18	8.2	16	.47
18	13	95	4.6	7.2	11	.22	7.1	10	.19
19	11	37	1.1	7.2	11	.22	5.8	10	.15
20	11	19	.54	7.2	9	.18	5.3	8	.13
21	9.8	10	.28	7.4	8	.16	5.4	7	.11
22	9.7	11	.28	7.6	8	.16	5.5	6	.09
23	9.1	16	.40	7.8	7	.15	4.8	5	.07
24	9.9	17	.44	7.8	6	.13	4.5	9	.10
25	9.5	16	.42	7.8	6	.13	4.3	10	.12
26	9.4	15	.37	7.8	7	.15	4.5	10	.12
27	8.4	15	.35	12	28	1.7	4.5	10	.11
28	8.6	16	.39	7.2	7	.14	9.8	3	.32
29	9.1	15	.35	7.2	7	.14	8.1	24	.61
30	8.4	12	.27	---	---	---	5.0	5	.07
31	8.4	8	.18	---	---	---	4.5	7	.08
TOTAL	760.7	---	5283.48	229.3	---	8.43	182.4	---	4.28

## RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	4.5	7	.08	58	459	321	10	27	1.3
2	4.5	7	.08	55	358	123	7.0	18	.37
3	4.5	7	.08	12	41	1.5	5.9	14	.22
4	4.4	7	.08	7.7	20	.40	17	108	14
5	3.6	7	.06	6.2	8	.14	6.2	15	.26
6	3.1	6	.04	11	33	1.3	5.6	12	.18
7	6.6	34	.67	6.4	12	.22	27	161	43
8	4.6	28	.39	4.5	5	.06	22	105	17
9	4.1	22	.25	5.2	5	.08	86	708	487
10	4.1	15	.16	4.3	6	.08	18	80	5.0
11	4.1	15	.16	3.5	7	.07	8.9	20	.53
12	3.6	13	.13	3.0	6	.05	10	34	1.9
13	3.6	13	.13	2.7	4	.03	6.3	14	.24
14	3.7	12	.12	2.7	4	.03	5.4	8	.13
15	3.5	8	.08	2.5	5	.04	4.9	8	.09
16	3.8	11	.11	49	367	277	4.9	13	.17
17	4.2	38	.42	6.5	21	.40	4.9	17	.23
18	4.0	18	.19	6.7	10	.18	5.2	20	.28
19	4.7	7	.08	4.5	7	.09	5.0	20	.26
20	5.7	5	.08	4.5	6	.08	4.8	20	.25
21	3.5	4	.04	3.8	5	.05	21	98	12
22	3.5	6	.05	3.2	5	.04	5.7	18	.29
23	3.5	8	.07	50	370	170	4.9	14	.19
24	3.5	11	.10	52	355	113	4.9	10	.13
25	3.2	17	.14	20	78	8.1	4.8	8	.10
26	2.9	23	.18	134	1060	1490	4.1	7	.08
27	2.7	29	.22	39	250	33	4.1	6	.07
28	2.7	34	.24	15	32	1.6	4.1	5	.06
29	8.0	56	3.6	14	45	3.4	3.9	4	.05
30	16	111	7.3	8.9	19	.50	3.8	4	.04
31	---	---	---	7.3	10	.19	---	---	---
TOTAL	134.4	---	15.33	603.1	---	2545.63	326.3	---	585.42



RIO GRANDE DE LOIZA BASIN

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50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	3.8	4	.04	3.8	8	.08	5.7	16	.66
2	5.3	4	.06	2.9	7	.06	5.1	13	.18
3	4.9	5	.08	3.5	5	.05	5.1	7	.11
4	4.9	6	.09	11	42	3.9	9.4	27	1.3
5	3.5	8	.08	68	467	153	12	41	2.2
6	3.5	8	.08	15	59	5.5	61	455	195
7	3.2	8	.07	4.6	11	.15	65	500	190
8	4.5	8	.10	3.5	8	.08	19	77	5.6
9	5.3	6	.09	266	1550	3990	12	28	.94
10	4.9	4	.06	33	132	21	9.7	18	.48
11	5.7	5	.08	17	62	3.9	9.1	15	.36
12	4.5	6	.08	8.8	19	.56	9.4	11	.25
13	4.9	6	.08	6.3	6	.10	24	136	26
14	5.3	7	.10	15	59	5.7	7.3	30	.90
15	5.3	7	.10	6.8	16	.35	4.4	10	.14
16	4.5	7	.09	4.5	9	.10	5.9	9	.14
17	4.1	7	.08	4.0	7	.08	18	76	8.3
18	4.1	8	.08	3.5	15	.14	5.1	20	.31
19	3.5	7	.07	3.5	6	.05	20	106	14
20	3.2	6	.06	3.5	4	.04	22	109	15
21	3.2	6	.06	11	46	5.7	25	117	12
22	3.2	6	.06	4.6	11	.15	5.4	12	.18
23	3.2	6	.05	3.4	6	.06	3.6	19	.18
24	4.5	8	.10	3.2	6	.06	3.1	22	.18
25	3.2	11	.10	3.0	7	.06	2.9	19	.15
26	2.4	12	.08	3.1	7	.07	2.9	15	.11
27	2.2	13	.08	3.2	8	.07	2.8	9	.06
28	2.2	13	.08	2.9	9	.07	2.5	4	.02
29	2.4	12	.08	2.7	9	.07	2.4	4	.02
30	2.4	10	.07	5.0	16	.49	6.6	24	1.1
31	3.5	10	.09	7.7	20	.53	---	---	---
TOTAL	121.3	---	2.42	534.0	---	4192.17	386.4	---	475.87
YEAR	3841.4		13345.89						

## RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
JAN 1992 16...	2100	139	2550	957	31	41	46

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
JAN 1992 16...	57	65	90	97	99	99.8	99.9

## RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEO (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEO (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1991					
08...	1539	12	102	6	91
27...	1250	9.6	224	6	99
DEC					
09...	1207	5.5	95	1.4	94
JAN 1992					
07...	1325	30	81	6.6	98
16...	2200	174	1320	619	94
MAY					
18...	0757	7.8	44	1	98
SEP					
06...	1300	284	3010	2310	94
07...	1345	152	874	358	89
30...	1712	21	127	7	89

## RIO GRANDE DE LOIZA BASIN

50059000 LAGO LOIZA AT DAMSITE, PR

LOCATION.--Lat 18°19'49", long 66°01'00", Hydrologic Unit 21010005, at pumpsite at damsite, and 1.9 mi (3.1 km) south of Trujillo Alto plaza.

DRAINAGE AREA.--208 mi<sup>2</sup> (539 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--December 1987 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lake is formed by Loiza Dam, a concrete structure completed in 1954. Useable capacity of impoundment is 30,000 acre-ft (37.0 hm<sup>3</sup>). Out flow from lake is controlled by five slide gates in powerplant and pump intake structure, four sluice gates, and concrete spillway with eight radial gates. Lake is used for municipal water supply and intermittent power generation. Gage-height satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 147.42 ft (44.93 m), Sept. 18, 1989; minimum elevation, 125.86 ft (38.36 m), June 12, 1988.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation 135.30 ft (41.24 m), Sept. 20; minimum elevation, 127.15 ft (38.76 m), May 1.

Capacity Table  
(based on data from Puerto Rico Electric Power Authority)

Elevation, in feet	Contents in acre-feet	Elevation, in feet	Contents in acre-feet
98.4	5,000	128.6	18,000
111.5	8,900	137.8	26,000
120.4	13,000	147.6	35,000

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134.36	133.86	134.70	134.22	134.74	133.59	130.48	127.70	135.01	134.74	133.62	134.21
2	134.42	134.04	133.48	134.20	134.70	133.46	130.32	129.16	134.69	134.76	133.64	134.19
3	133.36	134.06	133.84	134.16	134.70	133.36	130.14	129.22	133.54	134.76	133.76	134.25
4	133.78	134.04	134.46	134.10	134.72	133.28	129.94	129.08	133.80	134.74	133.97	134.33
5	134.08	134.10	134.72	133.24	134.74	133.24	129.78	128.90	134.68	134.48	133.23	134.51
6	134.34	134.30	134.12	133.86	134.82	133.18	129.52	129.96	134.41	134.52	134.15	133.49
7	134.44	134.16	134.24	134.50	134.52	133.10	129.44	130.62	133.87	134.50	133.80	134.73
8	134.46	133.14	134.36	134.24	134.56	133.24	129.30	130.64	134.75	134.62	134.07	133.37
9	134.48	134.34	134.46	134.18	134.56	133.16	129.10	130.58	133.78	134.12	134.05	134.05
10	134.56	134.20	134.52	134.08	134.70	133.04	128.94	130.42	134.02	134.14	134.07	134.16
11	134.60	134.46	134.56	134.04	134.74	132.90	128.80	130.28	134.22	134.40	133.40	134.18
12	134.68	134.48	134.64	134.42	134.71	132.78	128.72	130.26	134.64	134.52	133.84	134.16
13	133.82	134.56	134.72	134.80	134.66	132.58	128.86	130.19	133.94	134.54	134.05	134.14
14	133.82	134.42	134.88	134.14	134.64	132.46	128.78	130.02	134.04	134.54	134.59	134.08
15	133.84	134.54	134.37	134.38	134.64	132.38	128.78	129.98	133.32	134.56	133.40	134.02
16	133.86	134.74	134.40	134.26	134.60	132.26	128.68	133.04	134.00	134.60	133.56	134.18
17	133.92	134.10	134.44	134.80	134.54	132.22	128.52	134.04	133.48	134.32	133.72	133.34
18	133.96	134.22	134.44	134.26	134.44	132.24	128.36	134.40	134.22	134.48	133.80	133.74
19	133.96	134.28	134.42	134.40	134.38	132.18	128.54	134.00	134.60	134.58	133.82	133.18
20	133.90	134.34	134.60	134.48	134.32	132.12	129.00	134.22	134.14	134.82	133.85	133.90
21	133.84	133.22	134.38	134.58	134.24	132.04	129.08	134.36	133.52	134.28	133.92	133.17
22	134.08	133.12	134.42	134.64	134.15	131.93	128.98	134.34	134.34	133.58	133.92	133.69
23	134.12	133.74	134.44	134.70	134.09	131.82	128.84	131.91	134.84	133.83	133.90	133.33
24	134.06	134.30	134.42	134.76	134.04	131.68	128.64	134.83	133.92	134.05	134.08	133.79
25	134.00	134.33	134.38	134.50	133.98	131.50	128.41	133.13	134.14	134.55	134.10	133.37
26	133.90	134.58	134.32	134.62	133.92	131.33	128.17	134.54	134.32	134.72	134.07	133.59
27	133.80	134.60	134.30	134.66	133.88	131.16	127.94	134.41	134.46	134.82	134.08	133.77
28	133.66	134.46	134.26	134.70	133.80	131.06	127.68	134.36	134.58	133.53	134.05	133.09
29	134.20	134.22	134.22	134.74	133.70	130.96	127.48	134.73	134.66	133.55	134.05	133.27
30	133.56	134.48	134.16	134.74	---	130.80	127.34	134.49	134.72	133.53	134.05	133.45
31	133.66	---	134.18	134.74	---	130.60	---	134.10	---	133.66	134.15	---
MEAN	134.05	134.18	134.38	134.39	134.42	132.31	128.89	132.00	134.22	134.35	133.90	133.82
MAX	134.68	134.74	134.88	134.80	134.82	133.59	130.48	134.83	135.01	134.82	134.59	134.73
MIN	133.36	133.12	133.48	133.24	133.70	130.60	127.34	127.70	133.32	133.53	133.23	133.09

50059000 LAGO LOIZA AT DAMSITE, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, (COLS. PER 100 ML)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CaCO3
OCT 1991										
15...	1115	350	7.2	26.0	2.8	34	20	56	46	77
DEC 04...	1140	240	6.9	26.0	4.1	48	28	23	43	72
FEB 1992										
12...	1140	294	6.8	27.5	2.3	30	13	10	10	97
MAY 01...	1320	368	7.0	29.0	4.4	56	24	60	21	100
JUN 12...	0920	186	7.0	28.5	1.2	32	15	90	78	55
AUG 10...	1345	298	7.4	28.5	1.8	39	27	K600	1100	60

DATE	SULFIDE TOTAL (MG/L AS S)	RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)
OCT 1991										
15...	<0.5	5	0.078	0.010	0.088	0.300	0.50	0.80	0.89	3.9
DEC 04...	--	16	0.560	0.040	0.600	0.170	0.43	0.60	1.2	5.3
FEB 1992										
12...	--	14	--	<0.010	<0.050	0.280	0.12	0.40	--	--
MAY 01...	<0.5	7	0.300	0.110	0.410	0.060	0.44	0.50	0.91	4.0
JUN 12...	--	43	0.460	0.060	0.520	0.400	0.40	0.80	1.3	5.8
AUG 10...	--	54	0.530	0.080	0.610	0.190	0.51	0.70	1.3	5.8

DATE	PHOSPHORUS TOTAL (MG/L AS P)	BORON, TOTAL RECOVERABLE (UG/L AS B)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
OCT 1991									
15...	0.280	90	80	1200	260	100	<0.010	2	0.07
DEC 04...	0.200	--	--	--	--	--	--	--	--
FEB 1992									
12...	0.070	--	--	--	--	--	--	--	--
MAY 01...	0.200	50	20	120	150	40	<0.010	--	0.09
JUN 12...	0.250	--	--	--	--	--	--	--	--
AUG 10...	0.250	--	--	--	--	--	--	--	--

K = non-ideal count

## RIO GRANDE DE LOIZA BASIN

50059100 RIO GRANDE DE LOIZA BELOW TRUJILLO ALTO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°21'35", long 66°00'15", 100 ft (30 m) downstream of Highway 181 bridge, 0.4 mi (0.6 km) northwest of Trujillo Alto plaza, and 2.2 mi (3.5 km) northeast of Lago Loiza Reservoir.

DRAINAGE AREA.--213 mi<sup>2</sup> (552 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1981 to current year.

REMARKS: Flow controlled by Lago Loiza reservoir.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCHI, FECAL, (COLS. PER 100 ML)
OCT 1991											
15...	1020	11	418	7.6	30.5	1.0	4.0	53	18	K9300	2000
DEC											
04...	1050	10	366	7.1	25.5	8.6	6.1	90	11	2900	690
FEB 1992											
21...	1035	11	350	7.9	27.5	2.2	10.2	135	10	K740	K10
MAY											
11...	1100	3.0	418	7.3	31.0	8.3	11.5	151	20	500	K140
JUN											
16...	1300	10	425	7.0	32.5	6.9	9.3	108	13	K90	K65
AUG											
12...	0740	14	310	7.5	27.5	3.7	5.3	74	<10	2900	200

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
15...	100	26	9.7	23	1	4.3	110	<0.5	19	26
DEC										
04...	--	--	--	--	--	--	110	--	--	--
FEB 1992										
21...	--	--	--	--	--	--	120	--	--	--
MAY										
11...	140	33	13	31	1	2.8	140	<0.5	27	36
JUN										
16...	--	--	--	--	--	--	60	--	--	--
AUG										
12...	100	26	9.4	20	0.9	2.9	100	--	18	22

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
15...	0.20	26	200	5.98	<1	--	<0.010	0.350	0.030	0.77
DEC										
04...	--	--	--	--	22	0.890	0.020	0.910	0.030	0.27
FEB 1992										
21...	--	--	--	--	3	0.540	0.020	0.560	0.050	0.35
MAY										
11...	0.20	25	252	2.01	<1	0.450	0.030	0.480	0.070	0.43
JUN										
16...	--	--	--	--	10	0.640	0.010	0.650	0.040	0.16
AUG										
12...	0.20	23	182	6.88	5	0.960	0.030	0.990	0.060	0.24

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

## RIO GRANDE DE LOIZA BASIN

50061000 RIO GRANDE DE LOIZA AT CAROLINA, PR

LOCATION.--Lat 18°22'39", long 65°57'08", Hydrologic Unit 21010005, on upstream right bank of Highway 3 bridge, at Km 11.5, 0.5 mi (0.8 km) southeast of Carolina Plaza, 3.3 mi (5.3 km) west of Canóvanas Plaza and 2.5 mi (4.0 km) southwest of Cerro San José.

DRAINAGE AREA.--243 mi<sup>2</sup> (629 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--January 1991 to current year (gage-height only).

GAGE.--Water-stage recorder. Elevation of gage is 32.8 ft (10.0 m), from topographic map.

REMARKS.--Flow regulated by Lago Loíza Dam. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR CURRENT PERIOD.--JANUARY TO SEPTEMBER 1991: Maximum gage-height, 12.76 ft (3.889 m), July 16; minimum, 4.01 ft (1.222 m), Aug. 6.

WATER YEAR 1992: Maximum gage-height, 33.18 ft (10.113 m), Jan. 6; minimum 3.91 ft (1.192 m), June 30.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					5.13	5.04	5.81	5.73	5.14	6.58	4.90	5.09
2					5.00	4.79	6.02	5.87	5.19	6.13	4.83	5.13
3					5.25	4.86	6.24	6.06	5.28	5.84	4.81	5.06
4					5.40	4.96	6.49	6.29	5.28	5.10	4.87	5.09
5					6.70	5.02	6.63	6.52	5.27	5.08	4.86	5.28
6					7.33	5.82	6.21	6.01	5.33	5.04	4.78	5.35
7					6.88	5.95	5.30	5.43	5.38	4.96	4.83	5.83
8					4.84	4.88	5.37	5.54	5.34	5.44	4.93	5.69
9					4.83	4.87	5.23	5.89	5.29	5.09	4.98	5.34
10					4.85	4.92	5.06	6.09	5.24	4.92	5.01	5.28
11					5.76	5.10	5.12	6.15	5.18	4.97	5.04	5.23
12					5.41	6.02	5.27	6.35	5.14	5.02	5.03	5.32
13					6.14	5.72	5.54	6.67	5.18	5.02	4.92	5.30
14					5.95	5.89	5.66	6.54	5.24	5.10	4.95	5.25
15					5.03	5.78	5.93	4.82	5.25	5.38	4.93	5.29
16					4.83	5.57	6.74	4.86	5.27	8.17	4.89	5.30
17					5.02	5.44	6.63	4.91	5.24	6.20	4.95	6.69
18					5.83	5.55	4.77	4.92	5.22	5.58	4.85	6.38
19					6.50	5.84	4.82	5.02	5.26	6.29	4.79	5.22
20					7.19	6.09	4.83	6.12	5.18	5.22	4.85	5.31
21					5.03	6.18	4.86	5.18	5.21	4.82	4.88	5.35
22				5.25	5.45	6.41	4.95	5.07	5.17	4.80	4.90	6.77
23				5.22	4.79	6.12	5.00	5.08	5.11	4.85	5.04	6.55
24				5.16	4.71	5.56	5.17	4.99	5.10	4.85	5.02	5.49
25				5.21	4.77	5.38	5.36	5.02	5.09	4.82	5.06	6.31
26				5.24	4.83	5.45	5.52	5.12	5.21	4.86	5.09	5.65
27				5.21	4.86	5.56	5.55	5.11	5.28	4.94	5.29	5.46
28				5.32	5.17	5.45	5.32	5.09	5.24	5.43	7.32	5.47
29				5.23	---	5.39	5.45	5.08	5.26	5.14	5.55	7.51
30				5.28	---	5.46	5.60	5.20	5.26	4.99	5.15	6.88
31				5.27	---	5.61	---	5.19	---	4.97	5.10	---
MEAN				---	5.48	5.51	5.55	5.55	5.23	5.34	5.05	5.66
MAX				---	7.33	6.41	6.74	6.67	5.38	8.17	7.32	7.51
MIN				---	4.71	4.79	4.77	4.82	5.09	4.80	4.78	5.06



## RIO GRANDE DE LOIZA BASIN

50061000 RIO GRANDE DE LOIZA AT CAROLINA, PR --Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.46	6.58	5.34	5.03	4.84	4.76	5.41	5.59	5.80	4.73	5.03	5.66
2	6.59	6.22	6.45	5.08	4.91	4.82	5.50	6.27	6.97	4.84	4.97	5.47
3	6.71	5.93	5.44	5.13	5.06	4.87	5.56	4.97	5.95	4.89	4.99	5.28
4	5.46	5.76	5.26	5.21	5.32	4.83	5.61	4.81	6.22	4.90	5.06	5.19
5	5.42	5.66	5.23	9.89	5.18	4.84	5.65	4.82	5.00	5.47	7.98	5.42
6	5.36	5.68	5.89	18.54	4.90	4.87	5.72	5.04	5.85	4.85	7.15	6.36
7	5.30	7.80	5.17	7.02	5.54	4.84	5.78	4.94	6.46	4.76	5.98	6.16
8	5.33	11.26	5.04	6.17	4.89	4.82	5.90	4.88	5.27	4.76	4.91	6.87
9	5.12	10.23	5.04	6.14	4.86	4.94	6.01	4.91	7.05	5.53	5.60	6.12
10	5.08	6.79	5.04	6.75	4.79	4.93	6.15	4.98	6.00	4.82	5.37	5.63
11	5.14	5.39	5.05	5.08	4.74	4.82	6.26	4.99	6.19	4.81	6.26	6.26
12	5.15	6.27	5.05	5.51	4.83	4.78	6.35	4.98	6.67	4.79	4.92	5.92
13	6.12	5.40	5.16	5.12	4.87	4.79	6.39	5.01	7.10	4.81	4.94	6.20
14	5.18	6.18	5.20	5.96	4.85	4.82	6.40	4.96	6.17	4.82	5.18	6.15
15	5.22	5.37	5.85	4.96	4.89	4.84	6.40	4.89	4.99	4.83	6.29	5.81
16	5.23	5.38	5.10	5.30	4.92	4.93	6.12	4.85	6.08	4.85	4.99	5.56
17	5.19	6.19	5.07	5.26	4.86	4.95	5.13	4.89	5.18	5.35	4.90	6.65
18	5.23	5.49	5.07	5.83	4.90	5.10	5.03	6.25	5.48	5.18	4.97	5.23
19	5.37	5.44	5.06	4.98	4.88	4.89	5.00	6.53	4.77	4.85	5.13	6.12
20	5.47	5.61	5.27	4.86	4.79	4.81	4.94	5.65	5.10	4.84	4.98	9.50
21	5.61	6.03	6.35	4.84	4.78	4.79	4.93	4.94	7.64	5.59	5.00	10.19
22	5.57	6.99	5.74	4.82	4.75	4.98	4.93	4.88	4.83	5.89	5.02	7.12
23	5.51	6.54	5.29	4.81	4.71	5.23	4.82	6.70	4.74	5.28	5.03	6.47
24	5.41	6.05	5.20	4.72	4.68	4.94	4.78	11.29	5.84	4.93	4.99	5.67
25	5.41	6.61	5.24	5.31	4.72	4.81	4.95	6.52	4.83	4.82	5.15	6.28
26	5.41	5.42	5.12	4.87	4.65	4.82	5.01	12.94	4.77	4.86	5.17	5.71
27	5.43	6.06	5.14	4.92	4.68	4.93	4.86	7.33	4.68	4.88	5.17	5.95
28	5.56	5.95	5.05	4.88	4.72	4.89	4.85	6.08	4.69	6.15	5.55	6.48
29	5.71	5.95	5.13	4.82	4.74	5.00	5.07	5.56	4.71	4.95	5.56	6.04
30	6.26	5.55	5.09	4.86	---	5.19	5.65	6.11	4.74	4.91	5.61	6.27
31	7.20	---	5.06	4.84	---	5.30	---	5.80	---	5.02	5.60	---
MEAN	5.56	6.33	5.30	5.86	4.87	4.91	5.51	5.88	5.66	5.03	5.40	6.26
MAX	7.20	11.26	6.45	18.54	5.54	5.30	6.40	12.94	7.64	6.15	7.98	10.19
MIN	5.08	5.37	5.04	4.72	4.65	4.76	4.78	4.81	4.68	4.73	4.90	5.19

WTR YR 1992 MEAN 5.55 MAX 18.54 MIN 4.65

## RIO GRANDE DE LOIZA BASIN

50061800 RIO CANOVANAS NEAR CAMPO RICO, PR

LOCATION.--Lat 18°19'08", long 65°53'21", Hydrologic Unit 21010005, at center pier on downstream side of bridge, on paved secondary road, 0.4 mi (0.6 km) northeast of junction of Highways 185 and 186, 1.5 mi (2.4 km) south of Campo Rico, and 4.4 mi (7.1 km) south of Loiza.

DRAINAGE AREA.--9.84 mi<sup>2</sup> (25.48 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1967 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 225 ft (68 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e21	20	15	9.4	8.0	5.8	4.8	289	11	9.7	9.7	e10
2	e19	31	23	9.0	7.5	5.7	5.1	339	14	10	9.7	e7.4
3	e10	14	23	8.7	7.8	5.6	4.9	41	9.2	10	9.9	e8.8
4	e11	12	40	8.6	8.5	5.5	4.8	16	23	10	11	e8.0
5	e16	12	18	376	8.4	6.0	4.6	10	16	11	127	e23
6	e10	33	14	218	12	5.9	4.6	169	17	11	59	e26
7	e6.0	109	12	37	15	6.1	6.8	44	57	11	18	e14
8	e5.4	377	12	21	9.5	10	6.9	16	24	23	17	e7.6
9	e5.8	68	12	19	8.1	6.9	6.4	13	14	18	12	e10
10	e5.4	79	13	38	8.4	6.0	14	12	20	14	12	e12
11	5.0	21	12	20	8.0	5.6	6.8	11	19	15	20	e8.0
12	5.3	16	13	15	7.4	5.6	5.5	11	147	13	22	e6.8
13	5.5	13	13	38	7.3	5.5	5.5	8.7	32	17	13	e6.2
14	5.0	11	15	21	7.2	5.6	5.9	7.9	34	19	18	e6.4
15	4.7	9.9	12	16	7.2	6.5	5.5	8.1	19	14	17	e15
16	4.3	9.7	10	14	6.8	5.9	4.6	14	72	16	13	e32
17	4.2	8.9	11	13	6.5	9.3	4.6	17	43	27	20	e29
18	4.1	8.2	9.8	12	6.3	11	4.6	11	19	18	11	e28
19	4.1	7.7	9.3	12	6.5	9.1	7.3	19	13	13	9.5	e50
20	4.1	7.5	46	11	6.7	7.2	9.2	13	12	12	9.0	e58
21	3.9	22	44	11	6.2	6.4	5.8	10	22	11	8.6	e20
22	3.8	100	18	9.9	6.6	15	4.9	9.2	18	14	8.2	e17
23	4.1	29	14	10	6.8	12	4.6	339	12	13	7.8	13
24	3.7	53	12	9.6	21	7.1	4.4	201	10	15	e7.4	11
25	3.4	21	11	9.8	7.0	5.9	4.0	34	9.6	16	e7.2	9.5
26	3.4	15	11	9.8	6.7	5.5	4.5	128	9.2	12	e7.0	8.7
27	3.7	16	11	9.7	6.8	5.6	4.4	49	9.7	14	e7.0	7.9
28	4.7	17	10	9.0	6.8	5.4	5.5	25	9.5	13	e6.8	7.4
29	6.1	15	10	8.8	6.2	5.4	5.6	17	9.5	11	e7.0	8.5
30	9.3	16	9.6	8.4	---	5.1	14	14	9.7	10	e13	16
31	7.7	---	9.3	8.5	---	5.0	---	12	---	9.9	e22	---
TOTAL	209.7	1171.9	493.0	1021.2	237.2	213.2	180.1	1907.9	734.4	430.6	539.8	485.2
MEAN	6.76	39.1	15.9	32.9	8.18	6.88	6.00	61.5	24.5	13.9	17.4	16.2
MAX	21	377	46	376	21	15	14	339	147	27	127	58
MIN	3.4	7.5	9.3	8.4	6.2	5.0	4.0	7.9	9.2	9.7	6.8	6.2
AC-FT	416	2320	978	2030	470	423	357	3780	1460	854	1070	962
CFSM	.69	3.97	1.62	3.35	.83	.70	.61	6.25	2.49	1.41	1.77	1.64
IN.	.79	4.43	1.86	3.86	.90	.81	.68	7.21	2.78	1.63	2.04	1.83

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1992, BY WATER YEAR (WY)

	MEAN	45.5	46.5	34.4	24.2	19.6	14.7	16.3	30.6	19.2	18.0	26.7	33.0
MAX	273	125	116	62.4	48.4	36.2	53.2	93.2	63.7	63.7	137	103	
(WY)	1971	1985	1971	1969	1988	1969	1971	1969	1970	1979	1979	1979	
MIN	6.74	6.66	5.82	6.66	4.04	3.54	4.66	4.28	2.80	3.72	5.69	5.20	
(WY)	1968	1981	1968	1977	1977	1977	1984	1974	1974	1974	1991	1967	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1967 - 1992

ANNUAL TOTAL	5109.5	7624.2	
ANNUAL MEAN	14.0	20.8	27.8
HIGHEST ANNUAL MEAN			58.0
LOWEST ANNUAL MEAN			11.0
HIGHEST DAILY MEAN	377	Nov 8	3160
LOWEST DAILY MEAN	2.7	Jul 21	.80
ANNUAL SEVEN-DAY MINIMUM	2.8	Jul 19	1.5
INSTANTANEOUS PEAK FLOW			15000
INSTANTANEOUS PEAK STAGE			13.10
INSTANTANEOUS LOW FLOW			3.1
ANNUAL RUNOFF (AC-FT)	10130	15120	20110
ANNUAL RUNOFF (CFSM)	1.42	2.12	2.82
ANNUAL RUNOFF (INCHES)	19.32	28.82	38.32
10 PERCENT EXCEEDS	23	31	45
50 PERCENT EXCEEDS	9.0	10	13
90 PERCENT EXCEEDS	3.7	5.4	5.3

## RIO GRANDE DE LOIZA BASIN

50061800 RIO CANOVANAS NEAR CAMPO RICO, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS AUGUST 1981 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
MAR. 11	1335	5.43	190	25.0	JUN. 24	0832	10.8	210	25.5
MAY 22	1150	9.43	200	26.5	JUL. 23	0953	13.3	220	27.0
APR. 09	1315	6.33	190	24.5					

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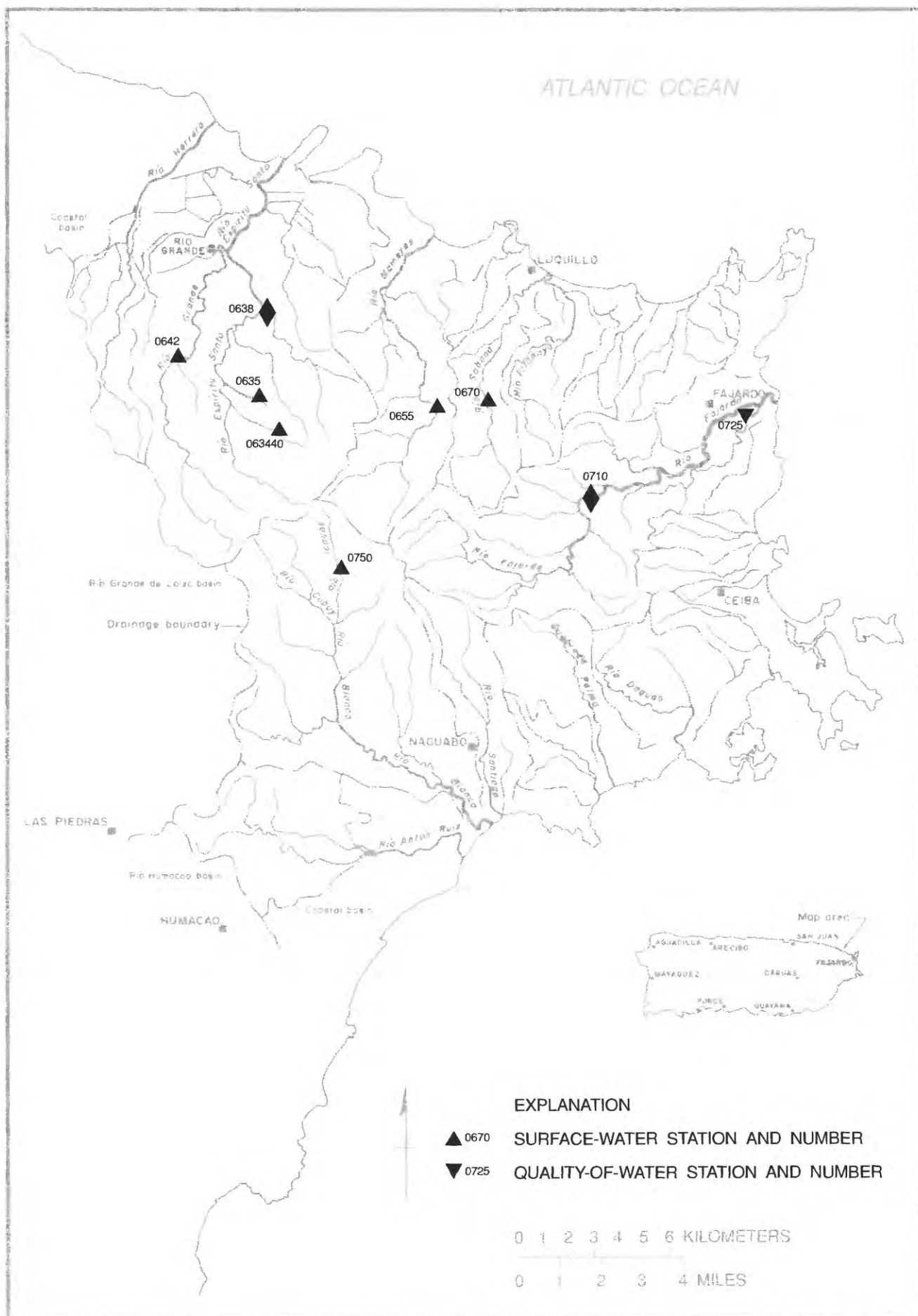


Figure 21.--Northeastern river basins the Río Herrera to Río Antón Ruíz basins.

## RIO ESPIRITU SANTO BASIN

50063440 QUEBRADA SONADORA NEAR EL VERDE, PR

LOCATION.--Lat 18°19'24", long 65°49'03", Hydrologic Unit 21010005, in Caribbean National Forest, at El Yunque, 0.6 mi (1.0 km) upstream from Río Espíritu Santo, 0.2 mi (0.3 km) upstream from Highway 186, and about 1.2 mi (1.9 km) south of El Verde.

DRAINAGE AREA.--1.01 mi<sup>2</sup> (2.62 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,230 ft (375 m), from topographic map.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	9.0	5.7	1.5	.54	e.21	.88	147	1.3	.18	.38	.38
2	5.1	4.2	17	.90	.42	e.22	.73	76	3.6	.15	.49	.79
3	2.5	5.7	38	.67	.49	e.21	.44	5.5	.72	.14	3.1	1.8
4	3.1	3.2	10	.56	1.1	e.18	.32	2.0	3.1	.12	2.5	.89
5	6.5	9.4	12	51	.59	.29	.32	1.4	1.7	.27	23	12
6	2.5	17	6.2	28	17	.33	1.2	63	11	.12	53	10
7	1.5	46	3.5	6.2	4.1	29	15	8.9	8.4	.09	4.8	1.8
8	1.3	89	7.3	3.6	1.8	2.6	13	2.8	2.3	7.6	3.5	5.1
9	1.2	18	5.4	32	.83	.77	6.6	6.8	.96	8.9	1.6	12
10	2.4	12	3.9	39	6.6	.60	2.0	8.8	29	2.0	1.9	.77
11	1.6	3.0	2.2	6.0	1.2	.49	1.3	11	18	20	23	.93
12	7.5	3.7	9.9	7.7	.66	8.8	12	1.9	14	1.2	11	.23
13	2.4	3.1	5.9	35	.49	1.8	5.3	1.3	4.5	3.9	4.3	.18
14	1.3	2.0	4.1	5.8	.39	1.7	3.0	1.1	3.7	14	4.4	.20
15	1.1	1.7	1.7	4.2	.33	2.0	1.9	.95	1.8	14	19	e3.0
16	.89	4.0	2.8	3.4	.26	.69	.89	35	42	8.8	2.7	e4.0
17	.81	1.9	1.4	2.9	.20	16	.77	1.8	3.9	24	3.6	26
18	.76	1.3	2.1	2.5	.19	27	28	1.1	1.5	9.5	2.0	6.8
19	.65	1.1	2.2	2.2	.21	7.6	4.8	1.1	1.9	1.8	.90	e1.0
20	.57	1.1	14	2.0	.44	2.6	1.7	1.5	.85	7.9	2.3	e10
21	.49	46	3.5	1.7	.20	1.3	1.0	.76	6.5	6.5	e1.5	e4.0
22	.42	39	1.8	1.6	2.4	5.6	.82	.62	1.5	18	e.33	e.60
23	.40	30	1.6	1.4	.68	7.7	.73	57	3.5	7.4	.36	e.50
24	.33	20	1.1	2.1	1.1	1.4	.63	18	.77	8.4	2.0	e.45
25	e.29	6.1	.97	2.1	.63	.99	.55	5.6	.70	13	.25	e.30
26	e.27	12	.92	2.6	2.0	.93	.48	14	.47	1.7	.50	e.25
27	e.24	9.7	1.2	1.4	.57	.76	.43	11	1.4	13	.45	e.23
28	e.21	9.2	1.5	4.2	e.53	.67	.38	1.6	.45	6.3	.46	e.21
29	e.21	12	1.4	1.8	e.28	.64	6.2	1.4	.30	8.1	1.2	e.20
30	e.23	7.8	1.6	.93	---	5.6	32	2.1	.23	1.2	.13	e.20
31	e.20	---	1.3	.70	---	1.9	---	1.2	---	.55	9.3	---
TOTAL	54.07	428.2	172.19	255.66	46.23	130.58	143.37	492.23	170.05	208.82	183.95	104.81
MEAN	1.74	14.3	5.55	8.25	1.59	4.21	4.78	15.9	5.67	6.74	5.93	3.49
MAX	7.5	89	38	51	17	29	32	147	42	24	53	26
MIN	.20	1.1	.92	.56	.19	.18	.32	.62	.23	.09	.13	.18
AC-FT	107	849	342	507	92	259	284	976	337	414	365	208
CFSM	1.73	14.1	5.50	8.17	1.58	4.17	4.73	15.7	5.61	6.67	5.88	3.46
IN.	1.99	15.77	6.34	9.42	1.70	4.81	5.28	18.13	6.26	7.69	6.78	3.86

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1992, BY WATER YEAR (WY)

MEAN	6.90	10.9	8.06	6.28	6.66	6.08	5.25	8.60	6.01	6.66	7.79	6.43
MAX	17.1	20.1	21.6	10.8	12.0	14.7	9.99	15.9	13.7	12.8	14.5	15.6
(WY)	1986	1985	1988	1988	1988	1990	1987	1992	1987	1983	1988	1989
MIN	1.74	2.47	.95	3.41	1.59	2.32	1.09	4.02	.98	2.36	3.37	2.34
(WY)	1992	1991	1990	1985	1992	1984	1984	1991	1985	1991	1991	1986

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1983 - 1992
ANNUAL TOTAL	1717.35	2390.16	
ANNUAL MEAN	4.71	6.53	7.05
HIGHEST ANNUAL MEAN			9.48
LOWEST ANNUAL MEAN			4.46
HIGHEST DAILY MEAN	89 Nov 8	147 May 1	216 Dec 7 1987
LOWEST DAILY MEAN	.10 Aug 8	.09 Jul 7	.09 Jul 7 1992
ANNUAL SEVEN-DAY MINIMUM	.11 Aug 6	.15 Jul 1	.11 Aug 6 1991
INSTANTANEOUS PEAK FLOW		1180 May 1	2230 Dec 7 1987
INSTANTANEOUS PEAK STAGE		8.14 May 1	9.42 Dec 7 1987
ANNUAL RUNOFF (AC-FT)	3410	4740	5110
ANNUAL RUNOFF (CFSM)	4.66	6.47	6.99
ANNUAL RUNOFF (INCHES)	63.25	88.03	94.91
10 PERCENT EXCEEDS	13	17	17
50 PERCENT EXCEEDS	1.6	1.8	3.0
90 PERCENT EXCEEDS	.27	.30	.69

## RIO ESPIRITU SANTO BASIN

50063440 QUEBRADA SONADORA NEAR EL VERDE, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS APRIL 1983 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
FEB. 20	1056	0.43	50	20.5	AUG. 25	1006	0.23	40	21.0
MAR. 12	1325	0.45	50	21.5	SEP. 16	1022	5.89	50	23.5
JUN. 23	1148	7.10	60	24.5					

## RIO ESPIRITU SANTO BASIN

50063500 QUEBRADA TORONJA AT EL VERDE, PR

LOCATION.--Lat 18°19'43", long 65°49'14", Hydrologic Unit 21010005, in Caribbean National Forest, at downstream side of culvert on Highway 186, 0.2 mi (0.3 km) upstream from Río Espíritu Santo, and about 0.9 mi (1.4 km) south of El Verde.

DRAINAGE AREA.--0.064 mi<sup>2</sup> (0.166 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1983 to current year.

GAGE.--Water-stage recorder and concrete broad-V-notch crested weir. Elevation of gage is 876 ft (267 m), from topographic map.

REMARKS.--Records fair.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	.11	.25	.12	.11	.04	.04	1.7	.27	.10	.15	.19
2	.15	.11	.28	.12	.10	.04	.04	2.2	.25	.10	.17	.18
3	.08	.07	.76	.11	.12	.04	.04	.35	.22	.09	.16	.16
4	.10	.16	.38	.10	.12	.04	.04	.22	.23	.09	.26	.14
5	.11	.39	.34	1.2	.08	.04	.04	.18	.21	.10	1.9	.22
6	.08	.60	.24	.84	.17	.04	.04	1.3	.34	.08	.95	.27
7	.06	1.3	.18	.25	.12	.12	.14	.47	.32	.07	.33	.13
8	.05	3.3	.25	.20	.10	.05	.13	.26	.24	.16	.25	.09
9	.05	.59	.25	.82	.10	.04	.06	.27	.20	.25	.23	.84
10	.06	.36	.18	1.5	.17	.04	.06	.44	.58	.14	.23	.10
11	.05	.19	.15	.35	.10	.04	.06	.28	.40	.30	.86	.09
12	.09	.18	.24	.32	.09	.05	.20	.20	.35	.12	.30	.08
13	.06	.15	.15	1.2	.09	.04	.12	.17	.28	.14	.28	.07
14	.05	.12	.14	.34	.09	.04	.06	.16	.28	.47	1.5	.06
15	.05	.12	.13	.22	.08	.03	.05	.15	.20	.31	.55	.08
16	.04	.14	.16	.19	.10	.03	.05	.75	1.5	.21	.54	.18
17	.04	.11	.13	.17	.10	.19	.05	.21	.47	.53	.37	2.9
18	.04	.10	.18	.15	.09	.13	.21	.16	.28	.24	.34	.35
19	.04	.09	.13	.14	.10	.09	.11	.15	.24	.16	.31	.16
20	.04	.09	.25	.13	.09	.06	.06	.14	.20	.21	.32	.43
21	.04	1.7	.17	.15	.11	.04	.05	.12	.22	.16	.28	.93
22	.04	1.8	.13	.14	.10	.07	.04	.12	.19	.52	.26	.33
23	.04	.78	.12	.13	.08	.06	.04	1.4	.21	.26	.34	.59
24	.04	.84	.11	.13	.08	.04	.04	.89	.16	.33	.31	.31
25	.03	.33	.10	.12	.07	.04	.04	.29	.16	.41	.29	.20
26	.03	.34	.12	.12	.08	.04	.04	.53	.14	.21	.29	.18
27	.03	.31	.15	.11	.05	.04	.04	.48	.15	.37	.27	.19
28	.03	.27	.14	.13	.05	.04	.03	.35	.13	.26	.23	.18
29	.03	.28	.13	.12	.04	.03	.26	.36	.12	.21	.21	.18
30	.03	.31	.11	.12	---	.03	1.3	.42	.11	.18	.21	.19
31	.03	---	.09	.12	---	.04	---	.29	---	.15	.27	---
TOTAL	1.82	15.24	6.14	9.86	2.78	1.66	3.48	15.01	8.65	6.93	12.96	10.00
MEAN	.059	.51	.20	.32	.096	.054	.12	.48	.29	.22	.42	.33
MAX	.21	3.3	.76	1.5	.17	.19	1.3	2.2	1.5	.53	1.9	2.9
MIN	.03	.07	.09	.10	.04	.03	.03	.12	.11	.07	.15	.06
AC-FT	3.6	30	12	20	5.5	3.3	6.9	30	17	14	26	20
CFSM	.98	8.47	3.30	5.30	1.60	.89	1.93	8.07	4.81	3.73	6.97	5.56
IN.	1.13	9.45	3.81	6.11	1.72	1.03	2.16	9.31	5.36	4.30	8.04	6.20

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1992, BY WATER YEAR (WY)

	MEAN	.34	.59	.41	.27	.24	.23	.20	.33	.24	.23	.30	.29
MAX	1.35	1.34	1.34	.58	.44	.63	.61	.64	.61	.61	.67	.54	.61
(WY)	1986	1985	1988	1988	1988	1990	1987	1986	1987	1983	1988	1988	1989
MIN	.059	.15	.091	.14	.092	.054	.035	.11	.056	.046	.063	.060	.060
(WY)	1992	1991	1990	1986	1987	1992	1984	1991	1991	1991	1991	1991	1991

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1983 - 1992
ANNUAL TOTAL	55.48	94.53	
ANNUAL MEAN	.15	.26	.30
HIGHEST ANNUAL MEAN			.45
LOWEST ANNUAL MEAN			.17
HIGHEST DAILY MEAN	3.3 Nov 8	3.3 Nov 8	6.9 Nov 27 1987
LOWEST DAILY MEAN	.01 Aug 5	.03 Oct 25	.01 Apr 10 1983
ANNUAL SEVEN-DAY MINIMUM	.01 Aug 5	.03 Oct 25	.01 Aug 5 1991
INSTANTANEOUS PEAK FLOW		19 Sep 17	101 Aug 13 1990
INSTANTANEOUS PEAK STAGE		1.73 Sep 17	2.61 Aug 13 1990
INSTANTANEOUS LOW FLOW		.03 Oct 24	.00 Apr 10 1983
ANNUAL RUNOFF (AC-FT)	110	188	219
ANNUAL RUNOFF (CFSM)	2.53	4.30	5.05
ANNUAL RUNOFF (INCHES)	34.40	58.61	68.59
10 PERCENT EXCEEDS	.33	.49	.66
50 PERCENT EXCEEDS	.08	.15	.15
90 PERCENT EXCEEDS	.03	.04	.05



## RIO ESPIRITU SANTO BASIN

50063500 QUEBRADA TORONJA AT EL VERDE, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS APRIL 1983 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
MAR. 12	1227	0.03	90	22.0	JUN. 23	1248	0.22	80	24.0
MAY 27	1457	1.35	80	24.0					

## RIO ESPIRITU SANTO BASIN

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR

LOCATION.--Lat 18°21'37", long 65°48'49", Hydrologic Unit 21010005, at left abutment, on downstream side of bridge on Highway 966, 0.1 mi (0.2 km) upstream from Quebrada Jiménez, and 1.9 mi (3.1 km) southeast of Río Grande.

DRAINAGE AREA.--8.62 mi<sup>2</sup> (22.33 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to April 1963 (annual low-flow and occasional measurements only), August 1966 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	e9.9	24	20	13	10	10	1010	13	6.7	23	23
2	40	e14	54	17	13	10	9.2	628	40	6.4	31	23
3	21	16	162	16	13	10	8.3	28	13	6.0	38	30
4	21	14	64	14	19	9.7	8.1	12	21	6.2	52	26
5	38	e26	48	481	15	10	8.3	8.7	16	6.7	488	69
6	20	e56	34	212	81	11	7.5	428	68	5.5	318	90
7	13	e113	23	45	37	180	45	38	57	5.0	70	33
8	12	e700	40	24	22	31	46	14	26	31	52	22
9	11	101	36	147	15	11	36	15	13	22	43	94
10	14	88	33	356	38	9.3	19	37	104	11	35	22
11	14	15	22	43	18	8.6	12	22	41	52	225	24
12	37	15	50	37	14	21	32	10	90	8.9	54	20
13	21	15	41	189	13	20	42	7.5	27	10	53	17
14	12	10	40	40	12	9.8	17	6.6	21	57	162	16
15	11	9.3	23	27	12	18	18	6.3	15	34	56	23
16	10	17	28	24	12	9.3	9.0	204	295	27	30	66
17	9.6	11	23	22	11	49	8.2	13	37	136	34	291
18	9.2	8.7	26	20	11	83	132	9.0	17	34	24	107
19	9.3	8.0	24	18	11	47	50	7.8	15	13	21	57
20	9.6	8.5	89	18	13	21	17	9.4	11	24	29	e200
21	8.6	e207	51	17	12	13	11	7.5	17	17	20	e140
22	8.5	e446	25	17	23	28	9.4	7.0	12	70	19	e50
23	8.5	119	23	16	15	30	8.8	412	16	29	19	e48
24	8.1	157	19	17	16	13	8.5	178	9.0	53	28	e40
25	7.7	27	17	19	15	10	8.2	27	8.3	63	17	e25
26	7.8	38	17	21	22	9.9	8.4	113	7.3	20	16	e22
27	7.5	64	20	16	15	9.1	8.2	47	13	67	19	e19
28	7.4	46	20	23	15	8.8	8.3	17	8.1	41	16	e18
29	7.3	32	21	20	11	9.0	16	14	7.5	43	20	e17
30	7.3	40	20	14	---	18	250	20	7.2	24	17	e17
31	6.1	---	17	13	---	22	---	16	---	22	80	---
TOTAL	474.5	2431.4	1134	1963	537	749.5	871.4	3372.8	1045.4	951.4	2109	1649
MEAN	15.3	81.0	36.6	63.3	18.5	24.2	29.0	109	34.8	30.7	68.0	55.0
MAX	57	700	162	481	81	180	250	1010	295	136	488	291
MIN	6.1	8.0	17	13	11	8.6	7.5	6.3	7.2	5.0	16	16
AC-FT	941	4820	2250	3890	1070	1490	1730	6690	2070	1890	4180	3270
CFSM	1.78	9.40	4.24	7.35	2.15	2.80	3.37	12.6	4.04	3.56	7.89	6.38
IN.	2.05	10.49	4.89	8.47	2.32	3.23	3.76	14.56	4.51	4.11	9.10	7.12

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1992, BY WATER YEAR (WY)

	MEAN	65.0	85.6	75.0	52.0	50.9	41.6	45.9	70.9	47.8	51.5	62.5	57.2
MAX	202	196	179	119	117	153	119	185	120	114	123	191	191
(WY)	1971	1985	1971	1969	1982	1990	1981	1979	1970	1983	1988	1989	1989
MIN	12.3	29.1	18.1	18.5	10.8	13.0	6.27	14.9	10.0	11.1	22.3	17.7	17.7
(WY)	1969	1982	1990	1977	1983	1977	1984	1973	1975	1975	1974	1971	1971

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1966 - 1992

ANNUAL TOTAL	13871.0	17288.4	
ANNUAL MEAN	38.0	47.2	59.3
HIGHEST ANNUAL MEAN			98.6
LOWEST ANNUAL MEAN			37.3
HIGHEST DAILY MEAN	700	1010	2600
LOWEST DAILY MEAN	6.1	5.0	4.1
ANNUAL SEVEN-DAY MINIMUM	7.3	6.1	4.4
INSTANTANEOUS PEAK FLOW		9520	19200
INSTANTANEOUS PEAK STAGE		10.89	15.74
INSTANTANEOUS LOW FLOW		4.8	4.0
ANNUAL RUNOFF (AC-FT)	27510	34290	42990
ANNUAL RUNOFF (CFSM)	4.41	5.48	6.88
ANNUAL RUNOFF (INCHES)	59.86	74.61	93.53
10 PERCENT EXCEEDS	88	90	125
50 PERCENT EXCEEDS	20	20	26
90 PERCENT EXCEEDS	8.6	8.5	11

## RIO ESPIRITU SANTO BASIN

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958, 1961-66, 1968 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991											
02...	0900	49	92	7.5	24.0	25	7.0	82	19	K6500	4100
DEC											
16...	1120	25	105	7.2	22.5	2.5	8.7	118	<10	560	340
FEB 1992											
12...	0920	13	106	6.7	22.0	1.6	8.1	106	<10	540	550
MAY											
13...	1045	7.8	90	6.3	25.0	1.7	7.8	94	<10	220	360
JUN											
29...	1245	7.6	120	6.9	29.0	1.5	6.1	81	<10	K900	K90
AUG											
17...	1120	33	92	7.0	26.5	2.5	7.8	97	<10	600	K160

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD CACO3 (00410)	SULFIDE TOTAL (MG/L AS S) (00745)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT 1991										
02...	27	5.9	3.0	7.6	0.6	0.60	26	<0.5	2.7	11
DEC										
16...	--	--	--	--	--	--	30	--	--	--
FEB 1992										
12...	--	--	--	--	--	--	70	--	--	--
MAY										
13...	26	5.7	2.9	7.3	0.6	0.50	26	<0.5	1.9	10
JUN										
29...	--	--	--	--	--	--	38	--	--	--
AUG										
17...	28	5.9	3.1	6.9	0.6	0.50	30	--	1.7	9.1

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
02...	<0.10	15	61	8.20	10	0.090	0.020	0.110	0.030	0.27
DEC										
16...	--	--	--	--	1	--	<0.010	0.087	<0.010	--
FEB 1992										
12...	--	--	--	--	8	--	<0.010	<0.050	0.010	--
MAY										
13...	<0.10	16	60	1.26	3	--	<0.010	<0.050	0.030	--
JUN										
29...	--	--	--	--	<1	--	<0.010	<0.050	0.030	--
AUG										
17...	<0.10	14	60	5.35	3	--	<0.010	<0.050	0.020	--

K = non-ideal count

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
02...	0.30	0.41	1.8	0.020	<1	<100	--	<1	1	<10
DEC										
16...	<0.20	--	--	<0.010	--	--	--	--	--	--
FEB 1992										
12...	<0.20	--	--	<0.010	--	--	--	--	--	--
MAY										
13...	<0.20	--	--	<0.010	<1	<100	20	<1	<1	<10
JUN										
29...	<0.20	--	--	<0.010	--	--	--	--	--	--
AUG										
17...	<0.20	--	--	0.010	--	--	--	--	--	--

[illegible]

## RIO ESPIRITU SANTO BASIN

50064200 RIO GRANDE NEAR EL VERDE, PR

LOCATION.--Lat 18°20'54", long 65°50'30", Hydrologic Unit 21010005, on left bank 250 ft (7.6 m) upstream side of bridge at Hwy 960, 0.05 mi (0.08 km) southwest of junction of Highways 956 and 960, 1.1 mi (1.8 km) west of El Verde, and 2.7 mi (4.3 km) south of Río Grande.

DRAINAGE AREA.--7.31 mi<sup>2</sup> (18.93 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1967 to December 1970, January 1972 to September 1982, August 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	46	30	19	13	6.7	5.3	405	17	8.3	11	19
2	33	49	49	16	14	6.4	4.8	262	22	8.0	11	12
3	17	37	74	14	13	6.1	4.6	38	19	8.0	14	15
4	14	29	55	14	13	5.7	4.4	19	46	7.8	16	13
5	29	36	29	215	13	5.9	4.4	14	25	8.9	192	35
6	16	72	21	138	49	6.0	4.2	165	42	8.3	132	43
7	12	136	18	43	30	41	16	46	78	7.9	43	18
8	9.7	385	24	24	16	25	15	21	35	41	31	12
9	10	111	27	41	12	8.3	17	18	19	24	19	17
10	11	91	31	107	19	6.4	12	37	49	12	17	13
11	9.3	27	23	33	13	5.9	5.3	25	33	22	71	12
12	38	20	34	27	9.8	5.5	13	17	79	12	29	11
13	20	19	32	95	8.6	5.7	16	13	46	20	32	9.3
14	11	15	35	35	8.0	5.9	6.1	12	41	38	71	9.4
15	9.4	13	18	25	7.6	15	9.5	13	22	23	34	12
16	8.7	15	19	22	7.1	7.4	4.4	56	89	29	34	40
17	8.3	13	18	20	6.7	15	3.9	22	51	76	32	65
18	8.1	11	16	19	6.5	29	9.8	20	26	30	18	39
19	8.1	9.8	15	18	7.2	28	20	15	16	16	16	54
20	7.3	9.1	80	17	6.8	11	7.5	19	13	16	15	107
21	7.1	105	58	17	6.4	7.6	5.6	13	21	13	14	67
22	6.9	151	28	16	8.8	25	4.5	12	16	28	13	28
23	6.7	67	25	16	7.7	14	4.3	279	13	18	13	27
24	7.6	86	20	17	6.3	8.4	4.1	106	11	50	14	23
25	7.0	22	19	17	7.4	6.8	4.1	53	10	32	12	15
26	6.8	20	18	18	8.2	6.0	3.9	108	9.4	14	12	13
27	6.3	32	21	17	7.7	5.5	3.7	52	10	35	12	11
28	6.3	49	20	17	11	5.2	3.8	28	9.3	22	11	11
29	6.2	25	20	18	7.8	5.0	11	23	8.8	14	11	10
30	8.8	41	17	14	---	4.8	47	23	8.5	11	11	11
31	6.9	---	16	13	---	6.0	---	21	---	11	38	---
TOTAL	395.5	1741.9	910	1122	344.6	340.2	275.2	1955	885.0	664.2	999	771.7
MEAN	12.8	58.1	29.4	36.2	11.9	11.0	9.17	63.1	29.5	21.4	32.2	25.7
MAX	39	385	80	215	49	41	47	405	89	76	192	107
MIN	6.2	9.1	15	13	6.3	4.8	3.7	12	8.5	7.8	11	9.3
AC-FT	784	3460	1800	2230	684	675	546	3880	1760	1320	1980	1530
CFSM	1.75	7.94	4.02	4.95	1.63	1.50	1.25	8.63	4.04	2.93	4.41	3.52
IN.	2.01	8.86	4.63	5.71	1.75	1.73	1.40	9.95	4.50	3.38	5.08	3.93

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1992, BY WATER YEAR (WY)

	MEAN	67.4	74.2	51.6	43.5	32.0	23.3	31.4	60.1	34.2	38.0	46.5	50.9
MAX	392	172	140	151	76.4	54.4	119	203	86.5	109	90.0	153	
(WY)	1971	1970	1971	1969	1969	1969	1978	1969	1968	1969	1968	1975	
MIN	8.45	14.3	13.8	10.1	5.80	4.50	8.55	10.2	6.22	9.05	7.39	12.4	
(WY)	1969	1981	1968	1977	1977	1977	1975	1974	1975	1991	1991	1967	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1967 - 1992

ANNUAL TOTAL	7907.4	10404.3	
ANNUAL MEAN	21.7	28.4	44.2
HIGHEST ANNUAL MEAN			87.1
LOWEST ANNUAL MEAN			25.8
HIGHEST DAILY MEAN	385	Nov 8	405
LOWEST DAILY MEAN	2.2	Aug 15	3.7
ANNUAL SEVEN-DAY MINIMUM	2.5	Aug 10	4.1
INSTANTANEOUS PEAK FLOW			4450
INSTANTANEOUS PEAK STAGE			12.88
INSTANTANEOUS LOW FLOW			3.6
ANNUAL RUNOFF (AC-FT)	15680	20640	32020
ANNUAL RUNOFF (CFSM)	2.96	3.89	6.05
ANNUAL RUNOFF (INCHES)	40.24	52.95	82.14
10 PERCENT EXCEEDS	48	53	85
50 PERCENT EXCEEDS	12	16	18
90 PERCENT EXCEEDS	4.1	6.4	7.2

## RIO ESPIRITU SANTO BASIN

50064200 RIO GRANDE NEAR EL VERDE, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.-- OCTOBER 1990 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
MAR. 12	1453	5.37	140	26.5	MAY 22	0910	11.8	120	25.0
APR. 10	1140	9.57	80	26.0	JUN. 23	1032	13.4	110	25.0

## RIO MAMEYES BASIN

50065500 RIO MAMEYES NEAR SABANA, PR

LOCATION.--Lat 18°19'46", long 65°45'04", Hydrologic Unit 21010005, on left bank, at bridge on Highway 988, 1.4 mi (2.3 km) west of Sabana, 2.0 mi (3.2 km) downstream from Río de la Mina, and 3.2 mi (5.1 km) southeast of Mameyes.

DRAINAGE AREA.--6.88 mi<sup>2</sup> (17.82 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1967 to December 1973, June 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 275 ft (84 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	114	62	26	24	18	28	754	135	43	26	19
2	64	67	94	21	25	18	24	375	160	41	37	17
3	43	56	163	19	27	17	19	75	52	41	38	24
4	45	37	92	17	68	18	17	50	54	37	60	23
5	63	82	86	487	34	19	17	42	37	39	179	39
6	38	141	65	190	114	20	16	273	67	40	114	61
7	29	259	51	74	49	152	39	90	54	41	64	32
8	28	641	61	59	33	47	60	54	36	88	41	28
9	34	206	52	134	28	22	119	59	24	63	39	94
10	44	147	51	222	50	19	37	60	148	45	57	27
11	29	84	39	78	30	18	40	64	73	89	172	44
12	45	77	59	68	26	60	52	39	77	40	56	29
13	34	71	53	117	24	31	52	34	57	40	46	28
14	31	58	75	58	24	38	35	31	45	73	74	26
15	29	64	32	50	23	38	29	30	30	73	53	29
16	27	92	44	47	22	20	20	135	176	80	35	48
17	25	67	32	45	22	55	31	39	83	154	35	79
18	24	53	33	41	21	88	132	33	56	61	26	64
19	33	47	31	38	25	e30	73	30	54	40	22	51
20	24	44	60	35	25	e29	34	28	47	58	33	130
21	20	233	42	33	21	e22	24	26	88	43	23	123
22	20	228	31	31	40	e35	22	25	51	56	20	49
23	26	127	28	31	24	e66	21	284	75	31	20	92
24	19	122	24	32	24	e35	20	104	48	53	32	76
25	18	72	23	38	23	e20	20	50	51	67	24	44
26	18	91	23	39	31	e23	19	122	45	61	21	34
27	19	94	23	30	34	e24	19	43	62	87	19	28
28	18	84	26	44	29	e70	19	27	47	66	17	25
29	24	89	24	35	21	e35	23	24	46	54	18	24
30	21	86	23	28	---	e110	92	46	45	32	21	30
31	18	---	31	26	---	e80	---	27	---	28	61	---
TOTAL	980	3633	1533	2193	941	1277	1153	3073	2023	1764	1483	1417
MEAN	31.6	121	49.5	70.7	32.4	41.2	38.4	99.1	67.4	56.9	47.8	47.2
MAX	70	641	163	487	114	152	132	754	176	154	179	130
MIN	18	37	23	17	21	17	16	24	24	28	17	17
AC-FT	1940	7210	3040	4350	1870	2530	2290	6100	4010	3500	2940	2810
CFSM	4.59	17.6	7.19	10.3	4.72	5.99	5.59	14.4	9.80	8.27	6.95	6.87
IN.	5.30	19.64	8.29	11.86	5.09	6.90	6.23	16.62	10.94	9.54	8.02	7.66

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1992, BY WATER YEAR (WY)

	MEAN	71.4	84.8	61.9	54.6	40.6	39.8	41.7	68.8	57.1	49.6	55.1	57.2
MAX	240	191	164	105	68.0	79.7	83.1	147	112	93.4	81.4	166	
(WY)	1971	1985	1971	1969	1988	1990	1973	1970	1970	1969	1988	1989	
MIN	20.3	36.3	16.6	25.0	21.7	18.1	14.5	18.7	12.4	20.5	28.0	26.6	
(WY)	1969	1974	1990	1985	1968	1968	1984	1973	1985	1971	1985	1986	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1967 - 1992

ANNUAL TOTAL	16938.2	21470	
ANNUAL MEAN	46.4	58.7	57.8
HIGHEST ANNUAL MEAN			78.0
LOWEST ANNUAL MEAN			41.2
HIGHEST DAILY MEAN	641	Nov 8	754
LOWEST DAILY MEAN	9.2	Apr 30	16
ANNUAL SEVEN-DAY MINIMUM	14	Apr 27	19
INSTANTANEOUS PEAK FLOW			10300
INSTANTANEOUS PEAK STAGE			10.30
INSTANTANEOUS LOW FLOW			12
ANNUAL RUNOFF (AC-FT)	33600	42590	41850
ANNUAL RUNOFF (CFSM)	6.75	8.53	8.40
ANNUAL RUNOFF (INCHES)	91.58	116.09	114.09
10 PERCENT EXCEEDS	93	111	104
50 PERCENT EXCEEDS	29	40	33
90 PERCENT EXCEEDS	17	20	16

## RIO MAMEYES BASIN

50065500 RIO MAMEYES NEAR SABANA, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS JUNE 1983 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
MAR. 10	1210	20.1	80	23.5	MAY 21	1230	25.9	100	25.5
APR. 09	1015	29.1	80	22.5	JUN. 11	1337	46.9	110	25.0



## RIO SABANA BASIN

50067000 RIO SABANA AT SABANA, PR

LOCATION.--Lat 18°19'52", long 65°43'52", Hydrologic Unit 21010005, on right bank along Highway 988, 0.3 mi (0.5 km) north of junction of Highways 988 and 983 in Sabana, and 3.3 mi (5.3 km) south of Luquillo.

DRAINAGE AREA.--3.96 mi<sup>2</sup> (10.26 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 260 ft (80 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	e15	13	10	8.4	5.8	6.1	372	85	12	9.8	8.2
2	12	e8.7	16	9.5	8.3	5.4	5.5	199	195	11	10	9.2
3	9.0	7.3	65	9.5	8.7	5.3	4.2	20	42	11	9.9	8.3
4	8.4	6.1	25	9.3	32	5.7	4.0	14	20	11	13	7.4
5	12	e19	19	436	11	5.0	4.0	12	15	11	36	8.5
6	7.9	42	15	95	35	5.1	3.9	50	14	10	28	11
7	6.6	e144	13	24	14	25	5.3	16	15	10	20	8.3
8	6.5	e235	16	17	10	18	11	12	12	15	13	11
9	25	e151	14	35	9.2	6.3	42	11	11	13	12	40
10	12	52	14	89	11	5.4	11	11	74	11	21	9.3
11	8.3	19	12	24	8.6	4.8	6.6	10	18	19	66	12
12	24	e16	14	20	8.0	5.3	8.7	8.6	86	10	18	7.7
13	12	e16	14	27	7.4	6.3	10	8.1	25	9.4	13	6.8
14	7.7	e14	14	17	9.5	6.8	4.8	7.9	15	16	16	7.1
15	6.9	15	12	16	7.5	12	3.9	7.9	12	12	13	7.5
16	6.2	19	19	15	7.2	5.3	2.7	15	66	9.8	12	12
17	5.9	15	12	15	7.3	13	9.4	8.5	19	29	11	29
18	6.1	12	12	13	7.2	9.4	49	7.5	16	11	9.9	18
19	14	e11	12	13	7.3	6.0	16	7.1	15	10	9.6	10
20	7.9	e11	36	12	7.8	6.0	7.9	6.9	18	21	11	37
21	6.3	e74	16	12	6.6	4.9	4.6	6.6	25	15	9.9	85
22	6.2	152	12	12	7.3	7.5	4.1	6.5	17	18	8.6	15
23	6.8	22	11	11	7.7	9.7	3.4	160	22	12	8.7	29
24	6.1	20	10	11	6.6	5.6	2.9	50	16	17	9.4	19
25	5.4	16	10	11	6.5	4.5	2.7	20	16	16	47	12
26	5.1	17	10	11	8.6	5.0	2.5	150	14	11	13	10
27	4.9	23	10	10	9.1	5.2	2.4	21	16	19	9.5	9.6
28	4.9	17	10	11	8.6	9.4	2.2	12	13	15	8.8	8.9
29	6.5	16	10	10	6.2	6.5	5.7	9.9	13	13	8.6	8.7
30	5.7	14	9.9	9.3	---	12	29	17	13	10	8.5	11
31	4.9	---	11	8.7	---	11	---	9.0	---	9.8	17	---
TOTAL	277.2	1199.1	486.9	1023.3	292.6	243.2	275.5	1266.5	938	418.0	501.2	476.5
MEAN	8.94	40.0	15.7	33.0	10.1	7.85	9.18	40.9	31.3	13.5	16.2	15.9
MAX	25	235	65	436	35	25	49	372	195	29	66	85
MIN	4.9	6.1	9.9	8.7	6.2	4.5	2.2	6.5	11	9.4	8.5	6.8
AC-FT	550	2380	966	2030	580	482	546	2510	1860	829	994	945
CFSM	2.26	10.1	3.97	8.34	2.55	1.98	2.32	10.3	7.90	3.41	4.08	4.01
IN.	2.60	11.26	4.57	9.61	2.75	2.28	2.59	11.90	8.81	3.93	4.71	4.48

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1992, BY WATER YEAR (WY)

	MEAN	22.7	32.5	24.2	12.6	11.7	12.7	12.9	35.3	22.0	14.5	17.7	16.7
MAX	66.4	79.7	64.1	33.0	22.2	36.0	33.5	63.9	50.6	31.3	32.7	56.3	
(WY)	1986	1988	1982	1992	1988	1987	1990	1982	1987	1989	1988	1989	
MIN	6.48	8.15	3.92	6.12	2.94	3.78	2.20	14.8	4.70	5.84	6.39	7.23	
(WY)	1983	1981	1990	1986	1983	1980	1984	1990	1985	1986	1985	1987	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1980 - 1992

ANNUAL TOTAL	5412.6	7398.0	
ANNUAL MEAN	14.8	20.2	
HIGHEST ANNUAL MEAN			19.7
LOWEST ANNUAL MEAN			28.2
HIGHEST DAILY MEAN	328	436	11.9
LOWEST DAILY MEAN	1.5	2.2	1984
ANNUAL SEVEN-DAY MINIMUM	2.0	2.9	887
INSTANTANEOUS PEAK FLOW		9600	1.96
INSTANTANEOUS PEAK STAGE		19.74	Apr 10 1983
INSTANTANEOUS LOW FLOW		1.9	Apr 22 1983
ANNUAL RUNOFF (AC-FT)	10740	14670	9600
ANNUAL RUNOFF (CFSM)	3.74	5.10	Jan 5 1992
ANNUAL RUNOFF (INCHES)	50.85	69.50	Jan 5 1992
10 PERCENT EXCEEDS	25	29	19.74
50 PERCENT EXCEEDS	6.6	11	Apr 17 1983
90 PERCENT EXCEEDS	3.4	5.7	.86

## RIO SABANA BASIN

50067000 RIO SABANA AT SABANA, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS AUGUST 1981 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
MAR. 10	1022	5.89	110	24.0	MAY 21	0945	7.23	100	25.0
APR. 09	0810	6.60	110	23.5	JUN. 11	1123	16.3	90	25.0

## RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR

LOCATION.--Lat 18°17'56", long 65°41'42", Hydrologic Unit 21010005, on left bank off Highway 976, 0.1 mi (0.2 km) upstream from Highway 977 bridge, 0.3 mi (0.5 km) downstream from Quebrada Peñón, 1.1 mi (1.8 km) northeast of Colonia Paraíso, and 3.3 mi (5.3 km) southwest of Fajardo.

DRAINAGE AREA.--14.9 mi<sup>2</sup> (38.6 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1960-61 (occasional low and peak-flow measurements only), March 1961 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 137.60 ft (41.940 m) above mean sea level.

Due to flood damage, gage datum has had changes as follows: Mar. 24, 1961 to May 5, 1969, 138.95 ft (42.352 m); May 6, 1969 to Mar. 16, 1972, 135.05 ft (41.163 m); Mar. 17, 1972 to Mar 25, 1975, 138.60 ft (42.245 m).

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Low flow affected by diversions for water supply about 400 m upstream from gaging station (estimated mean daily discharges is 9.0 ft<sup>3</sup>/s (0.255 m<sup>3</sup>/s). Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	55	49	16	e14	5.7	21	e254	270	5.1	6.0	23
2	37	32	62	13	e14	5.7	12	394	404	4.9	11	17
3	25	26	145	11	e15	5.8	6.3	41	119	4.9	15	24
4	22	15	90	10	e110	5.7	4.8	18	37	4.7	9.3	20
5	38	44	56	e860	e21	6.4	4.0	12	19	5.1	106	44
6	20	110	35	e150	e110	5.6	4.9	237	41	4.4	117	46
7	15	241	27	e60	e35	e40	17	56	36	4.2	30	22
8	21	724	39	e35	e19	77	13	19	e18	8.9	37	20
9	30	302	29	e50	e17	22	297	e16	e10	8.0	16	85
10	19	177	28	e250	e23	16	63	e15	213	4.8	19	26
11	17	77	23	e66	e15	14	47	e14	52	6.8	127	63
12	52	59	41	e54	e14	e42	17	e13	104	4.9	48	22
13	27	54	26	e80	e8.8	33	21	e11	29	4.7	e20	15
14	16	47	35	e38	8.0	41	14	e10	18	9.4	e32	12
15	14	43	20	e33	8.3	e56	12	e9.6	14	5.3	e29	14
16	12	57	42	e31	7.6	e24	8.0	e24	e60	7.4	25	63
17	11	41	22	e31	7.1	e16	123	e19	18	73	25	61
18	20	33	23	e25	7.0	e40	206	e17	10	18	20	79
19	40	30	19	e25	11	e18	262	e16	8.2	14	15	58
20	19	30	75	e23	9.6	20	65	17	7.9	26	28	230
21	13	129	43	e23	7.5	12	18	15	22	12	25	217
22	13	225	17	e24	11	44	13	16	8.9	19	14	64
23	67	63	14	e22	8.0	30	11	420	32	9.5	14	100
24	17	71	13	e23	7.1	12	e9.8	287	8.8	e22	38	43
25	13	43	13	e22	7.2	9.2	e8.8	346	8.4	e23	69	35
26	11	37	13	e23	12	8.9	e8.0	478	7.4	e15	27	33
27	9.8	51	11	e20	14	11	e7.6	83	9.7	e25	19	28
28	8.5	48	10	e23	11	9.6	e6.8	40	7.4	e15	14	23
29	10	76	11	e19	7.0	9.3	e14	28	6.3	e9.2	18	19
30	13	70	12	e17	---	59	e50	51	5.7	7.3	48	79
31	8.2	---	17	e15	---	45	---	37	---	6.2	77	---
TOTAL	679.5	3010	1060	2092	559.2	743.9	1365.0	3013.6	1604.7	387.7	1098.3	1585
MEAN	21.9	100	34.2	67.5	19.3	24.0	45.5	97.2	53.5	12.5	35.4	52.8
MAX	67	724	145	860	110	77	297	478	404	73	127	230
MIN	8.2	15	10	10	7.0	5.6	4.0	9.6	5.7	4.2	6.0	12
AC-FT	1350	5970	2100	4150	1110	1480	2710	5980	3180	769	2180	3140
CFSM	1.47	6.73	2.29	4.53	1.29	1.61	3.05	6.52	3.59	.84	2.38	3.55
IN.	1.70	7.51	2.65	5.22	1.40	1.86	3.41	7.52	4.01	.97	2.74	3.96

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1992, BY WATER YEAR (WY)

	99.4	106	79.6	45.0	37.7	36.2	46.2	97.1	61.9	50.5	58.9	87.4
MEAN	99.4	106	79.6	45.0	37.7	36.2	46.2	97.1	61.9	50.5	58.9	87.4
MAX	260	295	237	101	80.4	109	129	399	166	132	159	421
(WY)	1971	1975	1976	1969	1982	1987	1963	1979	1962	1969	1979	1989
MIN	19.1	30.8	14.9	15.4	10.8	9.70	4.02	17.7	10.0	12.5	26.8	19.1
(WY)	1969	1981	1990	1977	1983	1977	1984	1973	1985	1992	1985	1991

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1961 - 1992

ANNUAL TOTAL	13254.1	17198.9	
ANNUAL MEAN	36.3	47.0	67.7
HIGHEST ANNUAL MEAN			140
LOWEST ANNUAL MEAN			38.2
HIGHEST DAILY MEAN	724	860	8800
LOWEST DAILY MEAN	5.5	4.0	1.0
ANNUAL SEVEN-DAY MINIMUM	6.5	4.8	1.5
INSTANTANEOUS PEAK FLOW		23300	23500
INSTANTANEOUS PEAK STAGE		19.88	20.00
INSTANTANEOUS LOW FLOW			.86
ANNUAL RUNOFF (AC-FT)	26290	34110	49040
ANNUAL RUNOFF (CFSM)	2.44	3.15	4.54
ANNUAL RUNOFF (INCHES)	33.09	42.94	61.73
10 PERCENT EXCEEDS	66	86	129
50 PERCENT EXCEEDS	19	20	34
90 PERCENT EXCEEDS	9.1	7.5	12

## RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
OCT 1991										
01...	0950	33	98	7.0	25.5	4.3	7.8	95	<10	K110
DEC										
10...	1145	31	118	7.1	25.5	3.3	6.2	78	59	210
FEB 1992										
24...	1115	7.9	130	7.2	26.0	1.0	9.0	115	<10	K10
APR										
06...	1340	4.0	138	6.3	27.5	0.80	8.6	106	<10	250
JUN										
09...	1030	10	125	7.1	25.5	1.7	8.6	109	<10	230
AUG										
18...	1000	19	108	7.1	30.0	24	7.6	90	<10	50

DATE	STREP- TOCOCCHI FECAL, (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT 1991										
01...	420	25	5.5	2.7	9.2	0.8	1.2	23	<0.5	4.1
DEC										
10...	250	--	--	--	--	--	--	35	--	--
FEB 1992										
24...	80	--	--	--	--	--	--	30	--	--
APR										
06...	310	39	8.2	4.5	12	0.8	1.3	30	<0.5	3.8
JUN										
09...	K50	--	--	--	--	--	--	30	--	--
AUG										
18...	60	29	6.3	3.3	11	0.9	1.0	34	--	3.5

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
01...	12	0.20	19	68	5.99	4	<0.010	0.170	0.030	--
DEC										
10...	--	--	--	--	--	10	<0.010	0.210	<0.010	--
FEB 1992										
24...	--	--	--	--	--	8	<0.010	0.160	0.020	--
APR										
06...	15	<0.10	24	87	0.94	3	<0.010	0.150	0.030	0.17
JUN										
09...	--	--	--	--	--	23	<0.010	0.130	0.010	--
AUG										
18...	12	<0.10	20	77	3.95	4	<0.010	0.090	0.020	--

K = non-ideal count

## RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
01...	<0.20	--	--	0.030	<1	<100	<10	<1	<1	<10
DEC										
10...	<0.20	--	--	0.020	--	--	--	--	--	--
FEB 1992										
24...	<0.20	--	--	<0.010	--	--	--	--	--	--
APR										
06...	0.20	0.35	1.5	<0.010	<1	<100	<10	<1	<1	<10
JUN										
09...	<0.20	--	--	<0.010	--	--	--	--	--	--
AUG										
18...	<0.20	--	--	0.010	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1991										
01...	420	3	50	<0.10	<1	<1	20	<0.010	<1	0.02
DEC										
10...	--	--	--	--	--	--	--	--	--	--
FEB 1992										
24...	--	--	--	--	--	--	--	--	--	--
APR										
06...	90	<1	10	<0.10	<1	<1	<10	<0.010	2	0.02
JUN										
09...	--	--	--	--	--	--	--	--	--	--
AUG										
18...	--	--	--	--	--	--	--	--	--	--

## PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1992										
09...	1030	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1992									
09...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVERX, TOTAL (UG/L)
JUN 1992									
09...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01

## RIO FAJARDO BASIN

50072500 RIO FAJARDO BELOW FAJARDO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°19'35", long 65°38'47", 1.2 mi (1.9 km) southwest of Playa de Fajardo, and 0.5 mi (0.8 km) east of Fajardo plaza.

DRAINAGE AREA.--23.4 mi<sup>2</sup> (60.6 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991											
01...	1235	25	135	6.8	27.0	34	7.0	83	16	K8700	3100
DEC											
10...	1330	24	147	7.0	26.0	4.0	6.5	82	11	400	200
FEB 1992											
24...	1235	18	196	7.0	26.0	2.1	8.5	96	<10	720	800
MAY											
13...	0930	22	124	6.4	27.5	1.0	6.4	80	12	360	510
JUN											
09...	1135	17	135	7.1	29.5	3.0	8.2	91	<10	2800	260
AUG											
18...	1145	35	148	7.0	29.8	3.1	7.9	88	<10	490	20

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 1991										
01...	35	8.4	3.3	13	1	1.9	35	<0.5	5.6	17
DEC										
10...	--	--	--	--	--	--	23	--	--	--
FEB 1992										
24...	--	--	--	--	--	--	34	--	--	--
MAY										
13...	31	6.8	3.3	11	0.9	1.2	23	<0.5	4.4	14
JUN										
09...	--	--	--	--	--	--	40	--	--	--
AUG										
18...	37	8.5	3.8	13	0.9	1.1	18	--	4.3	20

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
01...	0.20	19	89	6.13	18	0.220	0.030	0.250	0.130	0.37
DEC										
10...	--	--	--	--	11	--	<0.010	0.100	0.020	--
FEB 1992										
24...	--	--	--	--	14	--	<0.010	0.110	0.030	--
MAY										
13...	0.20	21	76	4.51	12	--	<0.010	<0.050	0.030	--
JUN										
09...	--	--	--	--	<1	--	<0.010	0.120	0.040	--
AUG										
18...	<0.10	20	93	8.79	<1	--	<0.010	0.056	0.040	--

K = non-ideal count

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
01...	0.50	0.75	3.3	0.060	<1	<100	--	<1	2	<10
DEC 10...	<0.20	--	--	0.020	--	--	--	--	--	--
FEB 1992										
24...	<0.20	--	--	0.030	--	--	--	--	--	--
MAY 13...	<0.20	--	--	0.030	<1	<100	20	<1	<1	<10
JUN 09...	<0.20	--	--	0.010	--	--	--	--	--	--
AUG 18...	<0.20	--	--	0.060	--	--	--	--	--	--

[illegible]

## RIO BLANCO BASIN

50075000 RIO ICACOS NEAR NAGUABO, PR

LOCATION.--Lat 18°16'38", long 65°47'09", Hydrologic Unit 21010005, in Caribbean National Forest, off Highway 191, at El Yunque, 1.6 mi (2.6 km) upstream from confluence with Río Cubuy, 2.8 mi (4.5 km) north of Florida, and 5.3 mi (8.5 km) northwest of Naguabo Plaza.

**DRAINAGE AREA.**--1.26 mi<sup>2</sup> (3.26 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1945 to March 1953 (operated by Puerto Rico Water Resources Authority), annual maximum, water years 1953-62, annual low-flow measurements 1962-66, October 1979 to current year.

GAGE.--Water-stage recorder, crest-stage gage and sharp-crested weir. Elevation of gage is 2,020 ft (616 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e36	49	e6.9	e5.8	4.8	4.2	5.8	102	40	7.3	6.8	6.2
2	e25	17	e13	e5.0	4.8	4.1	4.3	40	33	6.8	9.7	5.5
3	e13	9.6	e25	e4.6	4.8	3.9	3.9	9.8	12	6.4	7.8	7.8
4	e13	8.0	e45	e4.1	5.4	4.1	3.9	8.9	15	6.4	13	8.8
5	e23	14	e19	e36	4.8	4.1	4.2	9.0	11	6.7	54	12
6	e12	43	e13	e132	16	4.1	4.1	161	20	6.2	34	9.2
7	e8.0	53	e6.0	e26	7.3	75	17	17	24	6.0	13	7.8
8	e7.5	152	e11	e7.0	5.8	13	14	12	14	14	8.8	5.9
9	e7.0	44	e10	e13	6.0	4.7	39	16	10	9.2	6.1	11
10	e8.8	20	e9.6	e100	8.6	4.3	7.7	12	30	7.0	7.5	5.6
11	e8.8	9.0	e6.4	e12	5.5	4.3	12	13	19	9.6	26	7.5
12	e23	9.0	e14	e11	5.2	24	13	11	18	7.2	6.6	5.5
13	e11	7.7	e12	e50	5.1	5.7	9.7	10	15	10	13	5.3
14	e7.4	7.0	e11	e12	4.9	8.0	8.4	9.9	15	9.8	20	5.6
15	e6.8	8.9	e7.0	e7.8	4.9	5.7	7.6	9.9	12	9.0	7.4	7.8
16	e6.2	10	e8.0	e7.0	4.8	4.0	6.1	44	30	10	8.3	15
17	e6.0	7.2	e6.8	e6.2	5.0	10	10	11	22	33	7.0	14
18	e5.8	6.3	e7.4	6.0	5.4	21	42	10	12	12	5.6	14
19	e5.9	6.0	e7.0	5.7	6.0	8.0	24	10	12	10	5.2	14
20	e6.0	5.9	e25	5.6	5.1	5.9	9.7	9.8	9.4	13	6.7	44
21	e5.4	45	e14	5.6	4.9	4.6	7.7	9.4	9.5	10	4.9	19
22	e5.4	34	e7.2	5.5	8.4	8.7	7.3	9.2	9.1	9.3	4.7	8.6
23	e5.4	23	e6.8	5.3	5.2	7.4	7.4	69	13	8.2	5.1	16
24	e5.1	14	e5.4	5.9	5.3	4.4	7.2	29	8.9	15	6.3	11
25	e4.8	e7.0	e4.8	7.7	5.2	4.2	6.9	25	8.4	10	4.8	7.1
26	e4.9	e12	e4.8	7.0	7.0	3.8	7.3	31	7.9	9.3	5.8	5.7
27	e4.7	e18	e5.8	5.5	5.9	3.7	6.9	11	9.7	9.9	5.2	5.1
28	e4.5	e13	e5.8	8.2	4.8	3.6	6.9	11	7.9	8.3	4.4	4.8
29	7.5	e9.6	e6.0	5.9	4.5	3.4	7.6	10	7.6	8.2	4.1	4.9
30	4.7	e11	e5.8	5.2	---	21	8.7	11	7.4	6.6	6.5	9.0
31	4.5	---	e5.0	5.1	---	6.9	---	13	---	6.6	16	---
TOTAL	297.1	673.2	334.5	523.7	171.4	289.8	320.3	754.9	462.8	301.0	334.3	303.7
MEAN	9.58	22.4	10.8	16.9	5.91	9.35	10.7	24.4	15.4	9.71	10.8	10.1
MAX	36	152	45	132	16	75	42	161	40	33	54	44
MIN	4.5	5.9	4.8	4.1	4.5	3.4	3.9	8.9	7.4	6.0	4.1	4.8
AC-FT	589	1340	663	1040	340	575	635	1500	918	597	663	602
CFSM	7.61	17.8	8.56	13.4	4.69	7.42	8.47	19.3	12.2	7.71	8.56	8.03
IN.	8.77	19.88	9.88	15.46	5.06	8.56	9.46	22.29	13.66	8.89	9.87	8.93

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1992, BY WATER YEAR (WY)

MEAN	16.3	18.6	15.4	12.6	13.5	10.8	13.0	17.6	12.5	14.0	14.8	17.1
MAX	32.1	46.8	31.3	26.9	44.0	26.1	34.4	26.3	20.5	38.8	24.5	37.6
(WY)	1986	1951	1988	1952	1950	1949	1950	1948	1987	1952	1945	1989
MIN	8.77	8.00	4.99	7.72	4.86	3.90	4.77	10.7	5.19	7.35	7.63	7.03
(WY)	1983	1948	1990	1987	1983	1951	1984	1951	1985	1991	1991	1986

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1945 - 1992
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ANNUAL TOTAL	4123.8		4766.7				
ANNUAL MEAN	11.3		13.0			14.7	
HIGHEST ANNUAL MEAN						21.0	1952
LOWEST ANNUAL MEAN						11.2	1984
HIGHEST DAILY MEAN	152	Nov 8	161	May 6	470		Sep 18 1989
LOWEST DAILY MEAN	3.6	Aug 7	3.4	Mar 29		1.5	Mar 22 1946
ANNUAL SEVEN-DAY MINIMUM	3.7	Aug 4	4.1	Feb 29		2.0	Apr 7 1946
INSTANTANEOUS PEAK FLOW			1260	May 6		2860	Apr 21 1983
INSTANTANEOUS PEAK STAGE			6.71	May 6		8.96	Apr 21 1983
INSTANTANEOUS LOW FLOW			2.9	Aug 29			
ANNUAL RUNOFF (AC-FT)	8180		9450			10630	
ANNUAL RUNOFF (CFSM)	8.97		10.3			11.6	
ANNUAL RUNOFF (INCHES)	121.75		140.73			158.27	
10 PERCENT EXCEEDS	23		25			30	
50 PERCENT EXCEEDS	7.5		8.0			8.2	
90 PERCENT EXCEEDS	4.5		4.8			4.7	



## RIO BLANCO BASIN

50075000 RIO ICACOS NEAR NAGUABO, PR--Continued

## WATER QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS AUGUST 1981 TO CURRENT YEAR

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CON- DUCTANCE (UMHOS)	TEMPERA- TURE (DEG C)
MAR. 31	1150	4.83	50	21.5	JUN. 12	1338	11.0	40	24.0
MAY. 20	1236	9.87	50	24.5					

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## RIO HUMACAO BASIN

50081000 RIO HUMACAO AT LAS PIEDRAS, PR

LOCATION.--Lat 18°10'27", long 65°52'11", Hydrologic unit 21010005, on left bank at downstream side of bridge on Highway 921, 0.6 mi (1.0 km) southeast of junction with Highway 30, 0.8 mi (1.3 km) downstream from Quebrada Blanca and 0.8 mi (1.3 km) south of Las Piedras.

DRAINAGE AREA.--6.65 mi<sup>2</sup> (17.22 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1958 to December 1967 (monthly discharge measurements), July 1974 to September 1977, October 1987 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 260 ft (79 m), from topographic map. Prior to July 1974, crest-stage gage at different datum. July 1974 to September 1977 at site 90 ft (27 m) upstream at present datum.

REMARKS.--Records fair except those above 1,000 ft<sup>3</sup>/s (28.3 m<sup>3</sup>/s) and estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	9.1	13	11	11	9.1	8.3	7.8	115	15	16	15
2	46	10	13	10	11	10	9.0	20	48	15	17	16
3	21	10	17	9.3	11	9.8	8.0	9.0	25	15	16	21
4	15	14	19	9.0	13	11	7.7	7.7	31	14	17	15
5	13	11	14	365	11	11	7.5	7.1	26	25	65	14
6	12	13	13	e290	22	12	9.1	13	21	16	22	21
7	12	96	12	e35	14	17	11	11	22	15	36	19
8	11	597	12	21	12	16	8.1	10	28	17	29	18
9	12	92	12	18	11	10	8.0	8.1	42	17	20	35
10	22	47	12	19	14	9.1	7.7	7.7	29	15	24	17
11	56	25	11	16	12	9.0	8.5	10	27	18	20	15
12	14	20	12	15	11	8.8	15	8.4	37	16	29	14
13	15	18	11	15	11	8.8	13	7.4	41	14	20	13
14	13	15	11	14	11	9.0	9.7	7.5	37	14	19	14
15	15	14	10	13	13	9.4	11	10	25	14	18	14
16	15	14	15	13	11	8.4	7.8	11	22	14	21	25
17	15	13	11	13	11	9.5	8.7	10	28	47	21	37
18	13	13	10	12	10	10	17	8.1	21	18	17	21
19	13	13	10	12	10	8.9	16	7.7	19	23	16	84
20	11	12	11	13	9.7	13	33	7.4	22	25	33	298
21	11	15	11	12	9.7	9.2	11	7.4	39	18	21	123
22	10	38	9.9	12	9.7	8.7	9.1	6.9	21	65	17	33
23	11	19	10	12	9.9	8.5	8.1	147	24	20	19	39
24	11	56	9.7	13	10	8.2	8.0	157	19	19	24	27
25	10	23	9.4	13	9.9	8.1	7.5	226	18	19	17	23
26	9.8	16	9.4	13	9.5	9.2	7.4	466	17	16	17	21
27	9.9	26	9.3	12	9.7	11	7.1	32	18	17	16	21
28	9.7	17	9.2	12	9.7	8.2	7.4	23	17	16	16	18
29	9.7	16	9.8	12	9.4	7.9	7.1	19	16	15	16	17
30	9.6	14	9.3	12	---	7.4	7.1	18	15	15	14	20
31	9.3	---	12	11	---	7.7	---	17	---	15	19	---
TOTAL	475.0	1296.1	358.0	1057.3	327.2	303.9	303.9	1308.2	870	602	672	1068
MEAN	15.3	43.2	11.5	34.1	11.3	9.80	10.1	42.2	29.0	19.4	21.7	35.6
MAX	56	597	19	365	22	17	33	466	115	65	65	298
MIN	9.3	9.1	9.2	9.0	9.4	7.4	7.1	6.9	15	14	14	13
AC-FT	942	2570	710	2100	649	603	603	2590	1730	1190	1330	2120
CFSM	2.30	6.50	1.74	5.13	1.70	1.47	1.52	6.35	4.36	2.92	3.26	5.35
IN.	2.66	7.25	2.00	5.91	1.83	1.70	1.70	7.32	4.87	3.37	3.76	5.97

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1992, BY WATER YEAR (WY)

	MEAN	35.3	44.6	36.3	19.9	15.0	11.7	9.27	15.3	15.3	17.6	19.8	31.4
MAX	74.9	126	112	34.1	20.5	16.4	13.1	42.2	29.0	33.2	32.7	54.1	
(WY)	1975	1988	1988	1992	1988	1989	1976	1992	1992	1989	1977	1975	
MIN	15.3	17.0	11.5	10.8	11.0	9.24	5.88	7.26	5.91	7.95	9.45	10.0	
(WY)	1992	1990	1992	1990	1977	1977	1977	1990	1977	1990	1974	1990	

## SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1974 - 1992

	ANNUAL TOTAL	5784.7	8641.6	
ANNUAL MEAN	15.8	23.6	22.8	
HIGHEST ANNUAL MEAN			37.6	1988
LOWEST ANNUAL MEAN			12.1	1990
HIGHEST DAILY MEAN	597	Nov 8	1670	Nov 27 1987
LOWEST DAILY MEAN	4.9	Jun 17	2.2	Jul 15 1974
ANNUAL SEVEN-DAY MINIMUM	5.9	Apr 27	2.8	Jul 19 1974
INSTANTANEOUS PEAK FLOW			20800	Sep 6 1960
INSTANTANEOUS PEAK STAGE			34.40	Sep 6 1960
INSTANTANEOUS LOW FLOW			6.8	May 22
ANNUAL RUNOFF (AC-FT)	11470	17140	16530	
ANNUAL RUNOFF (CFSM)	2.38	3.55	3.43	
ANNUAL RUNOFF (INCHES)	32.36	48.34	46.61	
10 PERCENT EXCEEDS	19	31	34	
50 PERCENT EXCEEDS	9.8	14	14	
90 PERCENT EXCEEDS	6.6	8.5	6.7	

## RIO HUMACAO BASIN

50082000 RIO HUMACAO AT HIGHWAY 3 AT HUMACAO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°08'49", long 65°49'37", at bridge on Highway 3, 300 ft (91 m) downstream from Quebrada Mariana, and 0.4 mi (0.6 km) south of Humacao.

DRAINAGE AREA.--17.3 mi<sup>2</sup> (44.8 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958-66, 1969 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS./100 ML)
OCT 1991											
22...	1210	3.4	400	7.0	28.5	13	2.4	31	61	K600000	300000
DEC 12...	1215	13	346	6.9	25.5	8.0	4.3	47	31	58000	42000
FEB 1992											
14...	1250	21	315	7.5	26.0	20	6.2	83	18	27000	7400
MAY 08...	1150	6.5	370	6.7	28.5	12	5.1	61	18	--	--
JUN 18...	1340	10	296	7.4	31.5	17	6.1	80	14	K8500	K1000
AUG 28...	1430	8.6	306	7.4	30.0	5.9	5.2	64	64	290000	6200

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
22...	95	26	7.2	34	2	3.4	130	<0.5	14	36
DEC 12...	--	--	--	--	--	--	90	--	--	--
FEB 1992										
14...	--	--	--	--	--	--	115	--	--	--
MAY 08...	89	26	5.9	27	1	2.2	100	<0.5	12	37
JUN 18...	--	--	--	--	--	--	84	--	--	--
AUG 28...	83	23	6.1	24	1	2.8	100	--	13	31

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
22...	0.10	37	236	2.18	<1	1.00	0.100	1.10	2.80	1.3
DEC 12...	--	--	--	--	5	0.910	0.090	1.00	1.40	0.90
FEB 1992										
14...	--	--	--	--	36	1.09	0.110	1.20	0.190	0.51
MAY 08...	0.20	33	203	3.59	4	0.650	0.050	0.700	0.060	--
JUN 18...	--	--	--	--	32	0.420	0.030	0.450	0.080	0.22
AUG 28...	0.10	34	190	4.41	18	0.500	0.020	0.520	1.20	0.60

K = non-ideal count

# RIO HUMACAO BASIN

50082000 RIO HUMACAO AT HIGHWAY 3 AT HUMACAO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BORON, TOTAL RECOVERABLE (UG/L AS B)	CADMIUM RECOVERABLE (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
OCT 1991										
22...	4.1	5.2	23	0.880	<1	<100	30	<1	<1	10
DEC 12...	2.3	3.3	15	0.570	--	--	--	--	--	--
FEB 1992										
14...	0.70	1.9	8.4	0.440	--	--	--	--	--	--
MAY 08...	<0.20	--	--	0.240	<1	<100	40	<1	<1	<10
JUN 18...	0.30	0.75	3.3	0.130	--	--	--	--	--	--
AUG 28...	1.8	2.3	10	0.410	--	--	--	--	--	--

[illegible]

RIO GUAYANES BASIN  
50083500 RIO GUAYANES AT YABUCOA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'33", long 65°54'03", at bridge on Highway 182, 1.4 mi (2.2 km) west-northwest of Yabucoa plaza.

DRAINAGE AREA.--17.2 mi<sup>2</sup> (44.6 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958-62, 1968-70, 1980 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991											
22...	1000	27	150	7.0	25.0	16	3.0	36	<10	42000	210
DEC 12...	1100	51	161	7.2	23.0	13	2.2	66	13	K220	K90
FEB 1992											
19...	0935	28	177	7.2	23.0	9.3	8.4	92	<10	K990	K90
MAY 08...	1000	33	160	6.3	25.0	33	6.9	90	16	2100	3100
JUN 18...	1135	88	127	6.9	26.0	53	6.4	74	14	4100	3300
AUG 24...	1250	28	150	7.0	28.0	8.4	6.9	81	<10	K7400	2600

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
22...	55	14	4.8	17	1	1.4	64	<0.5	3.7	15
DEC 12...	--	--	--	--	--	--	60	--	--	--
FEB 1992										
19...	--	--	--	--	--	--	64	--	--	--
MAY 08...	43	11	3.8	14	0.9	1.9	25	<0.5	5.6	15
JUN 18...	--	--	--	--	--	--	41	--	--	--
AUG 24...	47	12	4.2	14	0.9	1.4	40	--	3.6	14

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
22...	<0.10	36	130	9.39	4	0.230	0.030	0.260	0.090	0.11
DEC 12...	--	--	--	--	8	1.19	0.010	1.20	<0.010	--
FEB 1992										
19...	--	--	--	--	12	--	<0.010	0.810	0.010	--
MAY 08...	0.20	32	98	8.72	26	0.320	0.030	0.350	0.040	--
JUN 18...	--	--	--	--	71	0.290	0.030	0.320	0.060	--
AUG 24...	0.10	34	118	8.92	30	0.260	0.020	0.280	0.050	--

K = non-ideal count

## RIO GUAYANES BASIN

50083500 RIO GUAYANES AT YABUCOA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
22...	0.20	0.46	2.0	0.060	<1	<100	<10	<1	1	<10
DEC										
12...	<0.20	--	--	0.280	--	--	--	--	--	--
FEB 1992										
19...	<0.20	--	--	0.060	--	--	--	--	--	--
MAY										
08...	<0.20	--	--	0.060	<1	<100	20	<1	<1	<10
JUN										
18...	<0.20	--	--	0.070	--	--	--	--	--	--
AUG										
24...	<0.20	--	--	0.040	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1991										
22...	1700	3	130	<0.10	<1	<1	<10	<0.010	2	0.02
DEC										
12...	--	--	--	--	--	--	--	--	--	--
FEB 1992										
19...	--	--	--	--	--	--	--	--	--	--
MAY										
08...	2000	1	100	<0.10	<1	<1	<10	<0.010	2	0.02
JUN										
18...	--	--	--	--	--	--	--	--	--	--
AUG										
24...	--	--	--	--	--	--	--	--	--	--

## PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1992										
18...	1135	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1992									
18...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1992									
18...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01



## RIO GUAYANES BASIN

50086500 RIO GUAYANES ABOVE MOUTH AT PLAYA DE GUAYANES, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'45", long 65°49'42", at old railroad crossing, 0.2 mi (0.3 km) from mouth, 0.4 mi (0.6 km) west of Playa de Guayanés, and 3.5 mi (5.6 km) northeast of Yabucoa plaza.

DRAINAGE AREA.--34.0 mi<sup>2</sup> (88.1 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI (COLS. PER 100 ML)
OCT 1991											
28...	1135	11	182	7.2	27.0	13	7.8	97	10	K650	320
DEC											
17...	1230	27	180	7.2	24.5	12	8.1	99	11	290	570
FEB 1992											
19...	1140	35	185	7.6	25.0	9.8	7.5	90	14	280	250
MAY											
12...	1145	61	184	6.5	29.0	11	5.4	72	16	370	290
JUN											
19...	1045	40	210	6.6	27.5	29	4.4	62	26	2800	350
AUG											
28...	1250	39	255	7.3	29.5	7.5	7.2	86	<10	480	330

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
28...	56	14	5.0	18	1	2.0	54	<0.5	5.4	17
DEC										
17...	--	--	--	--	--	--	46	--	--	--
FEB 1992										
19...	--	--	--	--	--	--	62	--	--	--
MAY										
12...	48	12	4.3	16	1	1.9	57	<0.5	5.2	16
JUN										
19...	--	--	--	--	--	--	66	--	--	--
AUG										
28...	62	16	5.3	18	1	1.6	40	--	5.5	16

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
28...	<0.10	39	133	3.84	29	0.210	0.010	0.220	0.030	--
DEC										
17...	--	--	--	--	14	0.370	0.010	0.380	<0.010	--
FEB 1992										
19...	--	--	--	--	22	--	<0.010	0.370	0.010	--
MAY										
12...	0.20	36	126	20.6	8	--	0.010	<0.050	0.030	--
JUN										
19...	--	--	--	--	48	0.260	0.040	0.300	0.170	0.53
AUG										
28...	0.10	34	135	14.2	4	0.290	0.010	0.300	0.050	--

R = non-ideal count

## RIO GUAYANES BASIN

50086500 RIO GUAYANES ABOVE MOUTH AT PLAYA DE GUAYANES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
28...	<0.20	--	--	0.080	<1	<100	80	<1	1	20
DEC										
17...	<0.20	--	--	0.040	--	--	--	--	--	--
FEB 1992										
19...	<0.20	--	--	0.040	--	--	--	--	--	--
MAY										
12...	<0.20	--	--	0.020	<1	<100	20	<1	<1	<10
JUN										
19...	0.70	1.0	4.4	0.250	--	--	--	--	--	--
AUG										
28...	<0.20	--	--	0.030	--	--	--	--	--	--

[illegible]

RIO MAUNABO BASIN

373

50090500 RIO MAUNABO AT LIZAS, PR

LOCATION.--Lat 18°01'38", long 65°56'24", Hydrologic Unit 21010005, on right bank, off Highway 759 at Lizas, about 1.0 mi (1.6 km) downstream from Quebrada Coroco, and about 3.0 mi (4.8 km) northwest of Maunabo.

DRAINAGE AREA.--5.38 mi<sup>2</sup> (13.93 km<sup>2</sup>).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1971 to January 1985, February 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	18	22	34	6.2	5.3	4.6	6.1	26	9.9	12	21
2	138	9.3	22	13	6.4	5.8	4.4	7.5	15	9.2	13	15
3	21	6.6	56	10	6.7	5.8	4.1	4.1	13	9.2	12	17
4	14	6.4	42	9.3	7.2	6.7	3.9	3.6	69	9.0	11	14
5	12	8.1	25	289	7.2	6.3	3.8	3.6	15	13	123	13
6	10	10	21	212	16	7.4	4.9	9.8	17	11	21	18
7	8.9	120	e19	32	8.8	28	4.7	6.4	13	11	33	15
8	8.8	506	e17	20	7.7	20	4.1	5.0	13	16	21	13
9	46	107	e16	18	7.1	7.3	4.0	4.1	16	15	18	30
10	13	60	15	21	7.6	6.3	3.9	7.5	36	13	20	24
11	13	34	15	16	6.7	5.9	6.0	7.2	17	22	18	13
12	11	31	17	14	7.0	5.6	24	4.7	48	11	19	11
13	10	26	14	13	6.3	5.6	6.4	3.9	39	10	18	12
14	9.1	22	13	11	11	5.7	36	17	23	11	18	12
15	11	21	e20	10	7.6	5.8	10	12	21	11	16	12
16	9.2	19	14	9.7	7.0	5.2	5.7	50	33	11	18	15
17	12	18	12	8.9	6.3	6.7	5.0	11	35	14	19	e28
18	13	16	11	8.2	6.6	6.1	9.0	6.1	20	14	17	e17
19	8.9	16	11	7.7	6.1	5.3	64	5.0	16	15	16	e60
20	7.7	16	11	7.5	5.9	5.1	25	4.4	14	14	19	e290
21	7.3	35	11	7.3	6.0	4.8	8.8	4.2	71	31	16	e170
22	6.8	24	10	6.8	7.9	4.6	6.4	4.0	17	26	15	e44
23	6.8	39	10	7.0	6.2	5.8	5.2	152	14	14	17	e22
24	6.6	115	9.6	9.1	7.5	4.8	4.8	76	14	14	24	e16
25	6.5	28	9.3	7.8	6.5	4.4	4.5	24	12	15	12	e14
26	6.2	39	9.3	7.6	7.8	4.4	4.3	94	12	14	13	e12
27	6.0	56	9.5	6.5	6.6	4.3	4.3	6.9	12	12	13	e11
28	5.9	31	9.1	6.4	5.9	4.0	4.1	7.9	11	10	12	e10
29	6.0	32	8.8	6.0	5.6	4.0	5.2	15	11	9.8	12	e10
30	5.9	23	10	5.9	---	3.8	5.9	26	10	9.0	12	e9.8
31	5.4	---	32	6.0	---	5.3	---	18	---	9.6	19	---
TOTAL	463.0	1492.4	521.6	840.7	211.4	206.1	287.0	607.0	683	413.7	627	968.8
MEAN	14.9	49.7	16.8	27.1	7.29	6.65	9.57	19.6	22.8	13.3	20.2	32.3
MAX	138	506	56	289	16	28	64	152	71	31	123	290
MIN	5.4	6.4	8.8	5.9	5.6	3.8	3.8	3.6	10	9.0	11	9.8
AC-FT	918	2960	1030	1670	419	409	569	1200	1350	821	1240	1920
CFSM	2.78	9.25	3.13	5.04	1.35	1.24	1.78	3.64	4.23	2.48	3.76	6.00
IN.	3.20	10.32	3.61	5.81	1.46	1.43	1.98	4.20	4.72	2.86	4.34	6.70

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1992, BY WATER YEAR (WY)

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
MEAN	29.2	32.9	18.4	12.8	11.0	9.69	7.22	13.6	17.9	17.1	24.9	25.8
MAX	52.6	88.9	35.2	27.1	24.5	18.9	10.8	25.1	47.1	35.4	131	81.5
(WY)	1979	1978	1978	1992	1982	1976	1976	1979	1979	1979	1979	1979
MIN	12.7	7.46	8.87	7.79	6.10	4.32	3.92	5.13	4.40	3.70	6.18	7.99
(WY)	1982	1982	1981	1981	1979	1979	1979	1974	1974	1974	1974	1980

SUMMARY STATISTICS

FOR 1992 WATER YEAR

WATER YEARS 1971 - 1992

ANNUAL TOTAL	7321.7		
ANNUAL MEAN	20.0		18.5
HIGHEST ANNUAL MEAN			36.7
LOWEST ANNUAL MEAN			12.1
HIGHEST DAILY MEAN	506	Nov 8	2480
LOWEST DAILY MEAN	3.6	May 4	2.2
ANNUAL SEVEN-DAY MINIMUM	4.2	Apr 4	2.8
INSTANTANEOUS PEAK FLOW	3030	Jan 5	6780
INSTANTANEOUS PEAK STAGE	11.14	Jan 5	14.84
ANNUAL RUNOFF (AC-FT)	14520		13410
ANNUAL RUNOFF (CFSM)	3.72		3.44
ANNUAL RUNOFF (INCHES)	50.63		46.74
10 PERCENT EXCEEDS	32		33
50 PERCENT EXCEEDS	11		11
90 PERCENT EXCEEDS	5.1		5.2

## RIO MAUNABO BASIN

50091000 RIO MAUNABO AT MAUNABO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'24", long 65°54'19", at bridge on Highway 3, 0.4 mi (0.6 km) southwest of Maunabo plaza, and 1.3 mi (2.1 km) upstream from mouth.

DRAINAGE AREA.--12.4 mi<sup>2</sup> (32.1 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958-66, 1975 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991											
25...	1140	2.1	320	7.2	28.5	18	7.2	92	17	23000	K63
DEC											
17...	1105	0.98	247	7.1	23.5	3.9	8.6	101	14	540	370
FEB 1992											
18...	1130	11	273	7.8	24.5	19	7.7	84	<10	2200	620
MAY											
12...	0945	4.3	317	6.8	25.5	7.5	8.2	95	16	3100	2000
JUN											
17...	1135	47	190	7.0	27.0	130	6.3	70	36	K71000	43000
AUG											
26...	1145	4.5	230	7.1	29.5	12	7.0	79	14	29000	520

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
25...	97	23	9.5	27	1	2.2	110	<0.5	15	29
DEC										
17...	--	--	--	--	--	--	90	--	--	--
FEB 1992										
18...	--	--	--	--	--	--	120	--	--	--
MAY										
12...	90	22	8.5	27	1	2.4	92	<0.5	17	36
JUN										
17...	--	--	--	--	--	--	60	--	--	--
AUG										
26...	69	17	6.5	19	1	1.4	70	--	8.1	20

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
25...	0.20	39	211	1.22	18	0.230	0.050	0.280	1.00	0.30
DEC										
17...	--	--	--	--	1	--	<0.010	0.370	<0.010	--
FEB 1992										
18...	--	--	--	--	28	0.410	0.010	0.420	0.040	--
MAY										
12...	0.10	39	207	2.38	12	0.850	0.110	0.960	0.310	0.19
JUN										
17...	--	--	--	--	348	0.320	0.060	0.380	0.120	0.48
AUG										
26...	0.10	32	151	1.83	20	0.230	0.010	0.240	0.050	0.15

K = non-ideal count

50091000 RIO MAUNABO AT MAUNABO, PR--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
25...	1.3	1.6	7.0	0.550	<1	<100	60	<1	1	20
DEC 17...	<0.20	--	--	0.030	--	--	--	--	--	--
FEB 1992										
18...	<0.20	--	--	0.090	--	--	--	--	--	--
MAY 12...	0.50	1.5	6.5	0.780	<1	<100	50	<1	<1	<10
JUN 17...	0.60	0.98	4.3	0.140	--	--	--	--	--	--
AUG 26...	0.20	0.44	1.9	0.070	--	--	--	--	--	--

[illegible]

## RIO CHICO BASIN

50091800 RIO CHICO AT PROVIDENCIA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 17°59'16", long 66°00'18", at flat low bridge 200 ft (61 m) south of Highway 3, 0.5 mi (0.8 km) above mouth, and 1.5 mi (2.4 km) southeast of Patillas plaza.

DRAINAGE AREA.--4.9 mi<sup>2</sup> (12.8 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991											
04...	1035	3.4	327	7.4	29.0	3.0	4.3	55	<10	2100	370
DEC											
09...	1045	0.86	370	7.7	24.5	2.1	8.9	96	19	290	K64
FEB 1992											
18...	1030	1.9	396	7.5	25.5	9.5	6.6	84	28	27	290
APR											
06...	1140	0.46	519	7.0	31.0	6.5	6.4	85	31	--	--
JUN											
17...	1030	20	238	7.2	27.5	120	6.7	87	40	K130000	K66000
AUG											
25...	1030	0.67	330	7.8	26.3	3.5	7.0	89	12	290	200

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 1991										
04...	98	23	9.9	34	1	2.6	200	<0.5	19	32
DEC										
09...	--	--	--	--	--	--	125	--	--	--
FEB 1992										
18...	--	--	--	--	--	--	88	--	--	--
APR										
06...	87	23	7.1	61	3	11	64	<0.5	42	36
JUN										
17...	--	--	--	--	--	--	70	--	--	5--
AUG										
25...	94	22	9.4	30	1	2.3	100	--	16	29

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
04...	0.10	32	273	2.47	5	--	<0.010	1.10	0.040	0.36
DEC										
09...	--	--	--	--	14	1.38	0.020	1.40	0.030	0.27
FEB 1992										
18...	--	--	--	--	16	3.86	0.040	3.90	0.050	1.2
APR										
06...	0.10	25	274	0.34	17	9.58	0.120	9.70	0.230	4.1
JUN										
17...	--	--	--	--	230	0.550	0.020	0.570	0.070	1.0
AUG										
25...	0.20	31	206	0.37	11	1.98	0.020	2.00	0.040	0.26

K = non-ideal count

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
04...	0.40	1.5	6.6	0.830	<1	<100	--	<1	<1	<10
DEC										
09...	0.30	1.7	7.5	1.20	--	--	--	--	--	--
FEB 1992										
18...	1.3	5.2	23	3.40	--	--	--	--	--	--
APR										
06...	4.3	14	62	8.70	1	<100	150	<1	<1	10
JUN										
17...	1.1	1.7	7.4	0.440	--	--	--	--	--	--
AUG										
25...	0.30	2.3	10	0.810	--	--	--	--	--	--

[illegible]

## RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR--Continued  
(National stream-quality accounting network station)

LOCATION.--Lat 18°02'04", long 66°01'58", Hydrologic Unit 21010004, on left bank, at foot bridge, off Highway 184, 1.2 mi (1.9 km) upstream from Lago Patillas Dam and 2.2 mi (3.5 km) northwest of Patillas.

DRAINAGE AREA.--18.3 mi<sup>2</sup> (47.4 km<sup>2</sup>).

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CaCO3)
OCT 1991											
03...	1000	72	150	7.0	25.0	5.3	8.4	92	K1400	29000	42
JAN 1992											
28...	1050	33	185	7.5	27.0	1.4	8.9	101	490	K170	58
APR											
16...	0950	9.7	165	7.1	23.5	1.5	8.5	99	K870	2200	53
JUL											
13...	1045	31	165	6.7	26.5	1.0	7.8	88	460	500	49

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
OCT 1991											
03...	10	4.1	13	0.9	1.0	40	9.1	12	0.10	22	110
JAN 1992											
28...	14	5.5	15	0.9	0.80	54	10	13	0.20	21	100
APR											
16...	13	5.0	14	0.8	0.80	50	12	15	0.20	19	97
JUL											
13...	12	4.7	13	0.8	0.60	64	11	13	<0.10	23	117

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)
OCT 1991											
03...	97	21.3	0.360	0.120	0.15	0.90	0.020	0.030	0.030	0.09	80
JAN 1992											
28...	112	8.94	<0.050	0.030	0.04	0.20	0.010	0.010	0.020	0.06	20
APR											
16...	110	27.7	0.190	0.010	0.01	<0.20	<0.010	<0.010	0.020	0.06	20
JUL											
13...	117	9.63	0.190	0.030	0.04	<0.20	<0.010	<0.010	0.020	0.06	<10

K = non-ideal count



## RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR--Continued  
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	BARIUM, DIS- SOLVED (UG/L AS BA)	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
OCT 1991											
03...	11	<3	81	<4	11	<10	2	<1	<1.0	36	<6
JAN 1992											
28...	15	<3	28	<4	34	<10	2	<1	<1.0	51	<6
APR											
16...	13	<3	19	<4	13	<10	<1	<1	<1.0	45	<6
JUL											
13...	13	<3	14	<4	7	<10	<1	<1	<1.0	42	<6

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
03...	1000	72	322	62	99
JAN 1992					
28...	1050	33	34	3.02	88
APR					
16...	0950	9.67	26	0.68	98
JUL					
13...	1045	31	11.8	0.99	86

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## RIO SALINAS BASIN

50100200 RIO LAPA NEAR RABO DEL BUEY, PR

LOCATION.--Lat 18°03'36", long 66°14'28", Hydrologic Unit 21010004, on left bank, at bridge on Highway 1, Km 9.7, 1.5 mi (2.4 km) north of Rabo del Buey, and 4.4 mi (7.1 km) northeast of Salinas Plaza.

DRAINAGE AREA.--9.92 mi<sup>2</sup> (25.69 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1953-63 (annual low-flow measurements only), September 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 394 ft (120 m), from topographic map.

REMARKS.--Records fair.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.87	1.2	1.0	1.4	2.5	2.5	1.7	2.5	11	3.9	1.3	1.5
2	.94	1.3	.98	1.4	3.1	2.5	2.5	2.1	10	3.8	1.4	1.4
3	.93	.98	.96	1.4	2.7	2.8	2.0	1.8	9.0	3.6	1.4	1.3
4	.91	.84	1.0	1.4	1.7	2.8	1.9	1.9	8.1	3.4	1.3	1.2
5	.81	.83	.95	1080	1.9	2.8	1.8	1.8	7.5	3.2	50	1.3
6	.63	.83	.94	517	3.1	2.6	1.8	2.9	7.1	3.1	7.0	1.2
7	.92	27	.95	171	3.4	2.3	1.7	2.0	6.8	3.1	3.5	1.2
8	1.4	11	.95	98	2.5	1.7	1.9	1.6	6.2	3.2	2.9	1.1
9	1.4	2.7	.90	56	2.5	1.6	2.0	1.4	5.8	3.0	2.6	1.1
10	1.1	1.3	.86	42	2.5	1.9	1.9	1.4	5.3	2.9	2.5	1.1
11	1.0	.90	.78	26	2.6	2.2	1.7	1.2	7.4	3.0	2.5	.99
12	.93	.76	.77	13	2.5	2.1	2.1	1.2	8.0	3.0	2.5	.97
13	.94	.74	.76	9.3	2.4	2.1	1.9	1.0	6.8	2.9	2.2	.98
14	.88	.71	.79	11	2.7	1.9	2.1	9.6	6.7	2.9	2.1	.94
15	.84	.65	.78	12	2.4	1.9	2.2	3.3	6.4	2.6	2.1	.90
16	.84	.61	.80	10	2.7	1.7	2.3	2.1	6.4	3.0	2.1	.85
17	.83	.63	.80	8.6	2.4	1.7	1.6	1.9	5.9	2.7	2.0	.88
18	.84	.69	.81	10	2.2	1.8	1.3	1.7	5.8	2.5	1.9	.84
19	.86	.64	.82	11	2.4	2.2	3.1	1.4	6.0	2.3	1.9	.88
20	6.2	.65	.88	9.2	2.2	2.1	26	1.3	5.7	1.9	1.9	4.1
21	1.6	.69	.97	7.7	2.5	2.6	5.8	1.4	6.0	2.0	1.7	3.5
22	9.4	.79	.95	7.1	2.5	2.4	3.3	1.3	5.4	2.1	1.7	2.3
23	1.1	.78	1.0	5.7	2.7	1.8	2.3	76	5.1	1.9	1.8	1.9
24	.82	.97	1.0	3.9	2.2	1.7	2.2	113	4.8	2.0	1.7	1.7
25	.82	1.0	1.0	2.8	2.2	1.8	2.4	60	4.7	1.8	1.6	1.6
26	.80	1.1	1.0	3.3	2.3	1.6	2.6	760	4.7	1.7	1.6	1.6
27	.75	1.3	1.1	3.2	2.5	1.6	2.5	26	4.5	1.6	1.5	1.5
28	.83	1.3	1.2	3.3	3.6	1.5	2.4	15	4.3	1.6	1.5	1.4
29	1.3	1.2	1.3	2.9	2.5	1.5	2.6	13	4.2	1.6	1.5	1.4
30	2.2	1.1	1.3	2.2	---	1.6	2.6	12	4.0	1.5	1.5	1.5
31	1.3	---	1.4	1.9	---	3.2	---	12	---	1.4	1.5	---
TOTAL	45.27	65.19	29.70	2133.7	73.4	64.5	92.2	1133.8	189.6	79.2	112.7	43.13
MEAN	1.46	2.17	.96	68.8	2.53	2.08	3.07	36.6	6.32	2.55	3.64	1.44
MAX	9.4	27	1.4	1080	3.6	3.2	26	760	11	3.9	50	4.1
MIN	.75	.61	.76	1.4	1.7	1.5	1.3	1.0	4.0	1.4	1.3	.84
AC-FT	90	129	59	4230	146	128	183	2250	376	157	224	86
CFSM	.15	.22	.10	6.88	.25	.21	.31	3.66	.63	.26	.36	.14
IN.	.17	.24	.11	7.94	.27	.24	.34	4.22	.71	.29	.42	.16

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

	MEAN	23.3	9.32	2.50	18.6	4.24	1.25	1.16	9.64	2.05	.99	2.62	10.3
MAX	76.1	28.4	6.09	68.8	12.4	2.08	3.07	36.6	6.32	2.55	6.06	29.1	
(WY)	1991	1991	1991	1992	1991	1992	1992	1992	1992	1992	1990	1989	
MIN	1.46	2.17	.96	.56	.49	.44	.28	.18	.46	.14	.18	.82	
(WY)	1992	1992	1992	1990	1990	1990	1990	1990	1989	1989	1989	1991	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1988 - 1992

ANNUAL TOTAL	820.56	4062.39	
ANNUAL MEAN	2.25	11.1	
HIGHEST ANNUAL MEAN			7.20
LOWEST ANNUAL MEAN			11.2
HIGHEST DAILY MEAN	74	1080	1080
LOWEST DAILY MEAN	.16	.61	.02
ANNUAL SEVEN-DAY MINIMUM	.19	.65	.07
INSTANTANEOUS PEAK FLOW		15700	15700
INSTANTANEOUS PEAK STAGE		17.82	17.82
INSTANTANEOUS LOW FLOW		.48	
ANNUAL RUNOFF (AC-FT)	1630	8060	5210
ANNUAL RUNOFF (CFSM)	.22	1.11	.72
ANNUAL RUNOFF (INCHES)	3.05	15.11	9.78
10 PERCENT EXCEEDS	3.4	7.8	11
50 PERCENT EXCEEDS	1.0	1.9	1.3
90 PERCENT EXCEEDS	.37	.86	.21

50100450 RIO MAJADA AT LA PLENA, PR

LOCATION.--Lat 18°02'40", long 66°12'27", Hydrologic Unit 21010004, on right bank, upstream side of bridge on Hwy 712, about 0.3 mi (0.5 km) southwest of La Plena.

DRAINAGE AREA.--16.7 mi<sup>2</sup> (43.3 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some regulation at low flow upstream from station by local residents for agricultural purposes.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	1.6	2.3	2.1	3.3	2.4	4.8	2.5	17	5.6	3.4	4.1
2	2.6	1.1	2.7	2.4	3.2	2.3	7.0	2.8	16	5.5	3.5	3.9
3	2.8	.97	2.8	2.2	3.3	2.3	3.9	2.3	16	5.3	4.5	5.1
4	2.0	.85	5.4	1.9	3.4	2.2	2.5	1.9	15	5.0	3.5	3.4
5	1.6	.91	4.6	e1520	3.2	2.3	2.1	1.6	14	5.8	77	3.1
6	1.4	.90	3.3	e450	4.6	2.3	2.1	2.0	13	5.0	31	3.0
7	1.3	25	2.6	18	4.8	2.2	2.4	2.6	13	4.7	12	3.2
8	1.3	32	2.3	12	4.1	2.5	2.6	2.2	13	4.8	7.2	3.0
9	1.5	21	1.9	9.7	3.5	2.5	2.4	1.8	12	5.2	5.8	3.5
10	2.7	6.3	1.8	7.8	3.5	2.4	2.4	1.6	13	4.9	5.4	3.1
11	1.8	3.3	1.6	7.0	3.4	2.2	2.4	1.7	14	5.6	5.4	2.3
12	1.4	2.3	1.5	7.7	3.2	2.3	5.2	1.8	21	5.3	5.5	2.2
13	1.2	1.8	1.5	7.3	3.1	2.2	5.2	1.5	18	4.5	4.9	2.3
14	.97	1.4	1.3	5.7	3.0	2.1	4.0	6.8	16	4.1	4.8	2.1
15	.98	1.1	1.3	5.5	3.1	2.4	5.4	11	13	4.2	5.1	1.8
16	1.0	.90	1.4	5.4	3.0	2.3	3.3	3.3	11	8.1	4.5	2.0
17	.94	.97	1.2	5.3	2.7	2.3	2.4	2.5	11	6.2	4.3	3.1
18	.94	.88	.88	5.1	2.8	2.6	2.2	1.9	9.9	5.2	4.0	2.8
19	.95	.78	.80	5.1	2.7	2.7	3.0	1.7	9.1	4.6	3.9	2.8
20	.97	.79	.85	4.9	2.4	2.9	16	1.7	8.6	4.3	4.3	67
21	1.1	.70	1.8	4.8	2.4	2.8	8.3	1.7	17	4.2	3.7	48
22	.88	.87	1.2	4.6	2.3	2.8	3.5	1.6	12	4.5	3.4	22
23	.77	.98	.95	4.6	2.4	2.7	2.6	32	9.7	4.5	3.2	14
24	.85	2.7	.95	4.9	2.6	2.9	2.3	56	8.7	4.2	3.2	10
25	.94	3.1	1.0	4.7	2.9	3.1	2.1	31	7.9	4.0	3.2	7.9
26	.85	1.9	.93	4.6	2.9	3.1	2.0	496	7.3	3.9	3.5	7.0
27	.84	3.2	.91	4.1	2.9	3.2	2.1	31	6.9	3.8	3.8	6.8
28	.75	4.5	.96	4.0	2.9	3.3	2.0	25	6.6	3.7	3.5	6.0
29	.69	4.1	1.0	3.9	2.6	3.1	1.9	22	6.3	3.6	5.3	4.7
30	1.9	3.3	.98	3.6	---	3.1	2.6	20	5.7	3.6	3.5	5.0
31	3.7	---	1.2	3.4	---	3.4	---	18	---	3.4	3.6	---
TOTAL	44.22	130.20	53.91	2132.3	90.2	80.9	110.7	789.5	361.7	147.3	239.9	255.2
MEAN	1.43	4.34	1.74	68.8	3.11	2.61	3.69	25.5	12.1	4.75	7.74	8.51
MAX	3.7	32	5.4	1520	4.8	3.4	16	496	21	8.1	77	67
MIN	.69	.70	.80	1.9	2.3	2.1	1.9	1.5	5.7	3.4	3.2	1.8
AC-FT	88	258	107	4230	179	160	220	1570	717	292	476	506
CFSM	.09	.26	.10	4.12	.19	.16	.22	1.53	.72	.28	.46	.51
IN.	.10	.29	.12	4.75	.20	.18	.25	1.76	.81	.33	.53	.57

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	MEAN	22.3	10.4	4.17	19.5	4.83	2.36	1.97	7.33	3.79	2.12	2.96	11.6
MAX	76.4	25.2	9.67	68.8	12.1	3.92	3.69	25.5	12.1	4.75	7.74	30.1	
(WY)	1991	1991	1991	1992	1991	1991	1992	1992	1992	1992	1992	1989	1989
MIN	1.43	2.15	1.22	.98	.63	.59	.58	.25	.53	.62	.73	1.50	
(WY)	1992	1990	1990	1990	1990	1990	1990	1990	1990	1990	1989	1989	1991

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1989 - 1992

ANNUAL TOTAL	1186.84	4436.03	
ANNUAL MEAN	3.25	12.1	7.81
HIGHEST ANNUAL MEAN			12.1
LOWEST ANNUAL MEAN			1.61
HIGHEST DAILY MEAN	57	Feb 12	1520
LOWEST DAILY MEAN	.56	Aug 20	.69
ANNUAL SEVEN-DAY MINIMUM	.61	Sep 1	.81
INSTANTANEOUS PEAK FLOW			15200
INSTANTANEOUS PEAK STAGE			17.19
ANNUAL RUNOFF (AC-FT)	2350	8800	5660
ANNUAL RUNOFF (CFSM)	.19	.73	.47
ANNUAL RUNOFF (INCHES)	2.64	9.88	6.36
10 PERCENT EXCEEDS	5.5	13	11
50 PERCENT EXCEEDS	1.8	3.2	2.2
90 PERCENT EXCEEDS	.77	1.0	.49

## RIO COAMO BASIN

50106500 RIO COAMO NEAR COAMO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'52", long 66°22'10", Hydrologic Unit 21010004, on Highway 153 bridge, 0.4 mi (0.6 km) above Río de la Mina, and 1.8 mi (2.9 km) south of Coamo plaza.

DRAINAGE AREA.--46.0 mi<sup>2</sup> (119.1 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1978 to current year.

## WATER-QUALITY RECORDS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
OCT 1991 03...	1445	7.1	700	8.0	31.0	2.6	5.3	70	31	2100
JAN 1992 02...	1205	4.9	637	7.1	26.0	4.2	8.9	102	13	590
FEB 18...	0820	12	680	7.3	25.0	1.3	4.9	68	10	270
MAY 07...	1300	10	652	7.0	31.5	1.3	6.1	80	25	30000
JUN 23...	1330	9.3	630	7.0	32.5	1.5	10.7	116	20	2100
AUG 27...	1200	8.7	688	7.7	32.0	1.0	8.4	96	<10	2600

DATE	STREP- TOCOCCHI FECAL, (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)
OCT 1991 03...	K160	260	69	21	46	1	5.6	270	37	56
JAN 1992 02...	710	--	--	--	--	--	--	180	--	--
FEB 18...	290	--	--	--	--	--	--	260	--	--
MAY 07...	500	250	70	19	38	1	4.5	210	45	52
JUN 23...	20	--	--	--	--	--	--	240	--	--
AUG 27...	310	260	68	21	40	1	4.1	220	54	49

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991 03...	0.20	29	426	8.16	5	0.550	0.650	1.20	4.30	1.4
JAN 1992 02...	--	--	--	--	5	0.980	0.720	1.70	1.00	0.70
FEB 18...	--	--	--	--	6	0.870	0.230	1.10	1.10	0.50
MAY 07...	0.20	26	381	10.3	<1	0.820	0.680	1.50	1.20	0.60
JUN 23...	--	--	--	--	10	2.01	0.190	2.20	0.800	0.90
AUG 27...	<0.10	28	408	9.58	8	1.26	0.340	1.60	0.610	0.59

K = non-ideal count

WATER-QUALITY RECORDS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

## RIO DESCALABRADO BASIN

50108000 RIO DESCALABRADO NEAR LOS LLANOS, PR

LOCATION.--Lat 18°03'08", long 66°25'34", Hydrologic Unit 21010004, at bridge on Highway 14, 1.5 mi (2.4 km) west of Los Llanos, and 5.3 mi (8.5 km) east of Juana Díaz.

DRAINAGE AREA.--12.9 mi<sup>2</sup> (33.4 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1959-65 (annual low-flow measurements only), 1965 (annual maximum discharge), January 1966 to June 1969, July to December 1969 (maximum discharge only), February 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 220 ft (67 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some regulation at low flow by local resident upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	3.5	1.4	.96	1.6	1.9	45	e5.8	74	4.0	6.1	e.72
2	9.7	e10	1.3	.87	2.1	2.3	17	e5.4	48	2.2	2.0	e.70
3	5.8	e4.5	1.7	.79	1.9	2.2	7.9	e5.0	40	2.2	1.6	e.68
4	4.7	e2.5	2.0	.80	2.3	1.9	5.0	e4.7	34	2.0	1.6	e.68
5	4.7	e1.5	1.6	457	2.8	1.8	4.0	e10	27	1.3	49	e.66
6	4.0	e1.1	1.4	543	7.2	2.1	5.5	e16	21	1.1	22	.77
7	3.5	e1.3	1.3	e45	7.4	2.0	5.0	e10	17	1.3	10	7.3
8	3.3	e1.1	.99	e18	5.4	1.5	3.0	e5.0	22	1.2	8.3	4.7
9	4.7	e3.5	1.0	e12	2.5	1.3	2.6	e4.0	18	1.3	8.3	2.1
10	6.0	e3.0	1.0	e10	2.5	1.4	2.1	e3.8	13	1.7	7.8	1.6
11	4.1	e2.0	.97	e7.0	2.8	1.4	1.9	e10	9.9	1.8	6.0	1.6
12	3.4	e1.5	.92	e5.6	4.2	1.3	3.9	e6.0	9.5	2.2	6.6	1.6
13	2.6	e1.1	1.0	e4.0	2.5	1.3	2.9	e4.2	7.5	3.0	4.1	1.6
14	2.3	e1.0	1.1	e3.2	2.4	1.6	3.9	e5.0	7.2	2.9	3.1	1.3
15	1.9	e1.1	1.3	e2.6	2.2	1.5	7.7	e5.6	6.4	2.3	2.3	1.1
16	1.8	e1.1	1.7	e2.2	2.0	1.4	4.1	e4.0	5.4	1.8	2.1	1.1
17	2.3	e1.1	2.0	e1.8	1.9	1.9	7.0	e2.9	5.6	2.1	1.6	.87
18	1.4	e1.1	1.1	e1.5	2.0	1.7	4.8	2.2	5.7	3.9	1.8	.74
19	1.6	e1.2	.85	1.1	1.9	1.3	8.3	1.1	5.4	5.4	2.1	3.1
20	15	e1.1	.99	1.0	1.5	1.5	34	1.2	5.6	3.3	1.5	6.7
21	7.5	1.1	.96	1.0	1.4	3.4	55	.79	8.1	3.9	1.4	8.2
22	7.5	1.9	.98	.72	1.2	3.9	13	1.1	6.0	4.3	1.6	5.5
23	11	1.8	1.1	.67	1.3	2.4	8.4	357	6.4	3.3	1.4	4.7
24	3.2	2.2	1.3	.81	1.6	2.2	10	127	4.8	3.0	1.0	3.9
25	2.3	2.0	1.2	.80	1.4	2.1	12	54	2.4	2.3	1.2	5.0
26	1.7	1.8	1.2	.63	1.6	1.9	8.4	789	1.7	2.3	1.1	7.4
27	1.6	3.2	1.1	.75	2.0	1.6	7.3	138	1.1	2.1	1.1	5.3
28	1.3	3.2	1.1	.84	2.3	1.7	6.6	84	1.3	1.6	1.1	3.2
29	1.6	2.3	1.1	1.1	2.0	1.8	6.5	64	1.6	1.2	1.5	2.3
30	1.5	1.4	.95	1.3	---	1.8	e6.0	52	2.1	1.1	1.6	e8.0
31	7.6	---	1.0	1.5	---	1.8	---	44	---	4.2	1.4	---
TOTAL	137.8	65.2	37.61	1128.54	73.9	57.9	308.8	1822.79	417.7	76.3	162.3	93.12
MEAN	4.45	2.17	1.21	36.4	2.55	1.87	10.3	58.8	13.9	2.46	5.24	3.10
MAX	15	10	2.0	543	7.4	3.9	55	789	74	5.4	49	8.2
MIN	1.3	1.0	.85	.63	1.2	1.3	1.9	.79	1.1	1.1	1.0	.66
AC-FT	273	129	75	2240	147	115	613	3620	829	151	322	185
CFSM	.34	.17	.09	2.82	.20	.14	.80	4.56	1.08	.19	.41	.24
IN.	.40	.19	.11	3.25	.21	.17	.89	5.26	1.20	.22	.47	.27

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1992, BY WATER YEAR (WY)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
MEAN	29.2	17.2	5.58	5.73	2.04	1.13	3.92	15.9	5.20	2.39	3.51	13.4
MAX	117	41.0	24.5	36.4	7.57	3.49	18.8	62.2	25.2	10.5	9.11	40.2
(WY)	1986	1985	1988	1992	1986	1986	1985	1985	1987	1991	1988	1985
MIN	2.02	2.17	.19	.057	.020	.012	.000	.032	.000	.000	.19	.063
(WY)	1968	1992	1968	1968	1968	1968	1968	1968	1967	1967	1990	1967

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1966 - 1992

ANNUAL TOTAL	1913.06	4381.96	
ANNUAL MEAN	5.24	12.0	9.38
HIGHEST ANNUAL MEAN			18.4
LOWEST ANNUAL MEAN			1.89
HIGHEST DAILY MEAN	138	789	2600
LOWEST DAILY MEAN	.23	.63	.00
ANNUAL SEVEN-DAY MINIMUM	.28	.75	.00
INSTANTANEOUS PEAK FLOW		6020	30000
INSTANTANEOUS PEAK STAGE		13.46	24.37
INSTANTANEOUS LOW FLOW		.23	
ANNUAL RUNOFF (AC-FT)	3790	8690	6800
ANNUAL RUNOFF (CFSM)	.41	.93	.73
ANNUAL RUNOFF (INCHES)	5.52	12.64	9.88
10 PERCENT EXCEEDS	9.5	10	13
50 PERCENT EXCEEDS	2.0	2.2	1.3
90 PERCENT EXCEEDS	.47	1.1	.00



RIO JACAGUAS BASIN

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50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR

LOCATION.--Lat 18°07'37", long 66°27'24", Hydrologic Unit 21010004, on right bank, off a dirt road about 0.3 mi (0.5 km) from road 553, 2.4 mi (3.9 km) southeast from Villalba plaza, and 0.2 mi (0.3 km) downstream from confluence with Quebrada Limón.

DRAINAGE AREA.--7.64 mi<sup>2</sup> (19.79 km<sup>2</sup>).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1989 to current year.

GAGE.--Water stage recorder. Elevation of gage is 525 ft (160 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	4.8	1.4	1.3	3.6	2.6	17	4.2	174	15	8.7	3.2
2	3.6	4.1	1.4	1.2	3.5	2.5	11	3.7	93	15	6.8	3.0
3	3.2	3.7	1.4	.91	3.4	2.4	7.4	3.4	67	15	7.1	3.0
4	3.0	3.2	1.4	.85	3.2	2.4	5.0	3.2	55	18	9.1	3.0
5	3.0	2.7	1.4	676	3.2	2.4	4.1	3.2	45	20	21	3.0
6	2.8	2.6	1.4	381	7.7	2.4	3.9	3.6	39	19	18	3.4
7	2.8	2.8	1.4	42	7.4	2.4	3.6	4.3	35	18	6.7	4.5
8	3.2	3.8	1.4	28	8.7	2.5	3.5	3.2	60	19	5.8	31
9	3.9	2.4	1.2	22	5.3	2.4	3.2	3.1	34	19	5.8	15
10	3.2	2.2	1.3	17	4.4	3.0	5.6	3.0	26	17	16	4.9
11	2.9	2.2	1.3	16	4.1	2.7	4.2	3.2	27	17	10	3.4
12	2.8	2.1	1.4	22	4.6	2.4	4.0	4.7	32	17	7.9	2.8
13	2.6	1.9	1.4	15	3.6	2.3	3.6	8.3	28	16	6.5	2.7
14	2.6	1.7	1.4	10	3.5	2.2	3.4	27	27	16	5.7	2.4
15	2.6	1.8	1.4	7.9	3.4	2.2	3.8	37	28	15	5.9	2.3
16	2.6	1.8	1.4	13	3.3	2.4	17	30	25	15	5.2	2.5
17	2.6	1.7	1.5	16	3.3	2.4	26	21	24	13	4.5	2.9
18	2.6	1.6	1.5	6.9	3.2	2.5	13	16	22	14	4.3	2.6
19	2.5	1.6	1.3	5.7	3.2	2.4	21	18	21	13	4.0	2.4
20	9.5	1.5	1.3	5.6	3.1	2.5	62	14	20	12	11	3.8
21	3.3	1.5	1.6	5.2	2.9	2.9	39	8.1	21	13	16	4.2
22	14	1.5	1.5	4.9	3.6	3.6	21	3.8	19	12	8.0	3.0
23	4.2	1.5	1.5	4.6	3.9	2.9	13	212	19	11	5.3	3.4
24	2.9	1.5	1.5	4.6	2.8	2.8	9.2	137	18	12	4.4	4.6
25	2.6	1.7	1.5	4.3	2.8	2.8	6.9	92	18	12	4.0	3.6
26	2.4	1.6	1.6	4.5	3.0	2.8	5.7	382	18	11	3.8	3.7
27	2.2	1.6	1.6	4.0	2.9	2.8	5.1	78	17	9.2	3.9	3.2
28	3.6	1.6	1.4	3.7	2.8	3.1	4.5	55	17	8.9	3.7	3.1
29	3.2	1.5	1.4	3.6	2.6	19	4.1	46	17	8.0	3.9	6.3
30	24	1.5	1.4	3.7	---	10	4.4	40	16	7.8	3.5	62
31	11	---	1.3	3.8	---	16	---	39	---	17	3.3	---
TOTAL	143.0	65.7	43.9	1335.26	113.0	117.7	335.2	1307.0	1062	444.9	229.8	198.9
MEAN	4.61	2.19	1.42	43.1	3.90	3.80	11.2	42.2	35.4	14.4	7.41	6.63
MAX	24	4.8	1.6	676	8.7	19	62	382	174	20	21	62
MIN	2.2	1.5	1.2	.85	2.6	2.2	3.2	3.0	16	7.8	3.3	2.3
AC-FT	284	130	87	2650	224	233	665	2590	2110	882	456	395
CFSM	.60	.29	.19	5.64	.51	.50	1.46	5.52	4.63	1.88	.97	.87
IN.	.70	.32	.21	6.50	.55	.57	1.63	6.36	5.17	2.17	1.12	.97

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	MEAN	54.3	18.2	5.93	17.2	3.68	3.39	5.17	14.7	10.8	7.39	6.96	25.6
MAX	109	40.1	11.2	43.1	4.75	4.71	11.2	42.2	35.4	14.4	11.9	46.2	
(WY)	1991	1991	1991	1992	1991	1991	1992	1992	1992	1992	1989	1989	
MIN	4.61	2.19	1.42	3.75	2.37	1.67	1.46	1.42	1.23	.71	2.74	6.63	
(WY)	1992	1992	1992	1990	1990	1990	1990	1990	1990	1990	1990	1992	

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1989 - 1992

ANNUAL TOTAL	1952.7	5396.36	
ANNUAL MEAN	5.35	14.7	14.4
HIGHEST ANNUAL MEAN			18.2
LOWEST ANNUAL MEAN			10.4
HIGHEST DAILY MEAN	89	May 20	676
LOWEST DAILY MEAN	1.2	Dec 9	.85
ANNUAL SEVEN-DAY MINIMUM	1.3	Dec 5	1.2
INSTANTANEOUS PEAK FLOW			8700
INSTANTANEOUS PEAK STAGE			13.24
INSTANTANEOUS LOW FLOW			.83
ANNUAL RUNOFF (AC-FT)	3870	10700	10460
ANNUAL RUNOFF (CFSM)	.70	1.93	1.89
ANNUAL RUNOFF (INCHES)	9.51	26.28	25.67
10 PERCENT EXCEEDS	8.4	25	32
50 PERCENT EXCEEDS	3.2	3.9	3.5
90 PERCENT EXCEEDS	1.6	1.5	1.1

## RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1988 to 1992.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: April 1988 to September 1992.

INSTRUMENTATION.-- Automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,170 mg/L January 05, 1992; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 18,300 tons (16,600 tonnes) January 05, 1992; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,170 mg/L January 05, 1992; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 18,300 tons (16,600 tonnes) January 05, 1992; Minimum daily mean, 0.0 ton (0.0 tonne) few days.

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	7.6	29	2.3	4.8	23	.33	1.4	5	.02
2	3.6	8	.08	4.1	23	.28	1.4	5	.02
3	3.2	7	.06	3.7	22	.27	1.4	6	.02
4	3.0	7	.06	3.2	21	.22	1.4	8	.03
5	3.0	7	.06	2.7	20	.18	1.4	10	.04
6	2.8	9	.07	2.6	19	.16	1.4	11	.04
7	2.8	11	.08	2.8	16	.12	1.4	13	.05
8	3.2	11	.09	3.8	15	.16	1.4	15	.06
9	3.9	9	.08	2.4	15	.10	1.2	16	.05
10	3.2	11	.09	2.2	15	.08	1.3	17	.06
11	2.9	17	.13	2.2	15	.08	1.3	14	.05
12	2.8	22	.16	2.1	15	.08	1.4	11	.04
13	2.6	22	.16	1.9	13	.07	1.4	13	.05
14	2.6	19	.13	1.7	11	.06	1.4	16	.05
15	2.6	16	.11	1.8	10	.05	1.4	15	.05
16	2.6	15	.10	1.8	10	.05	1.4	15	.06
17	2.6	14	.10	1.7	10	.04	1.5	13	.05
18	2.6	13	.10	1.6	10	.04	1.5	12	.04
19	2.5	15	.11	1.6	10	.04	1.3	11	.04
20	9.5	50	4.9	1.5	10	.04	1.3	11	.04
21	3.3	11	.11	1.5	10	.04	1.6	14	.06
22	14	75	19	1.5	8	.04	1.5	18	.08
23	4.2	19	.19	1.5	8	.04	1.5	21	.08
24	2.9	36	.27	1.5	7	.03	1.5	21	.08
25	2.6	41	.29	1.7	6	.02	1.5	20	.08
26	2.4	39	.26	1.6	6	.02	1.6	19	.08
27	2.2	35	.21	1.6	6	.02	1.6	17	.07
28	3.6	48	.54	1.6	5	.02	1.4	16	.06
29	3.2	20	.21	1.5	5	.02	1.4	15	.06
30	24	164	59	1.5	5	.02	1.4	14	.05
31	11	62	2.8	---	---	---	1.3	17	.08
TOTAL	143.0	---	91.85	65.7	---	2.72	43.9	---	1.64

## RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	1.3	15	.05	3.6	24	.23	2.6	15	.10
2	1.2	15	.05	3.5	28	.26	2.5	25	.17
3	.91	15	.04	3.4	33	.29	2.4	33	.21
4	.85	15	.04	3.2	35	.30	2.4	31	.20
5	671	3170	18300	3.2	28	.24	2.4	15	.10
6	381	2540	8100	7.7	16	.34	2.4	11	.07
7	42	279	38	7.4	14	.28	2.4	10	.06
8	28	85	6.9	8.7	14	.33	2.5	10	.06
9	22	25	1.6	5.3	16	.22	2.4	9	.06
10	17	9	.43	4.4	16	.19	3.0	8	.07
11	16	9	.39	4.1	15	.18	2.7	7	.05
12	22	13	.77	4.6	14	.17	2.4	7	.04
13	15	19	.67	3.6	14	.13	2.3	6	.03
14	10	24	.63	3.5	21	.19	2.2	5	.02
15	7.9	27	.60	3.4	32	.28	2.2	3	.02
16	13	68	5.4	3.3	44	.38	2.4	2	.02
17	16	70	3.7	3.3	29	.25	2.4	2	.02
18	6.9	25	.45	3.2	51	.44	2.5	2	.02
19	5.7	25	.38	3.2	45	.37	2.4	2	.02
20	5.6	24	.35	3.1	38	.30	2.5	3	.02
21	5.2	23	.31	2.9	38	.30	2.9	3	.03
22	4.9	22	.29	3.6	47	.45	3.6	4	.04
23	4.6	23	.27	3.9	54	.53	2.9	7	.06
24	4.6	24	.28	2.8	48	.36	2.8	10	.08
25	4.3	15	.19	2.8	33	.24	2.8	10	.08
26	4.5	25	.29	3.0	20	.15	2.8	10	.08
27	4.0	24	.25	2.9	14	.11	2.8	10	.08
28	3.7	20	.19	2.8	10	.08	3.1	10	.09
29	3.6	17	.17	2.6	9	.06	19	115	13
30	3.7	18	.18	---	---	---	10	37	1.4
31	3.8	21	.21	---	---	---	16	80	7.7
TOTAL	1330.26	---	26463.08	113.0	---	7.65	117.7	---	24.00

## RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	17	79	5.6	4.2	17	.18	174	819	955
2	11	40	1.4	3.7	15	.15	93	265	77
3	7.4	19	.41	3.4	14	.13	67	32	5.9
4	5.0	17	.23	3.2	13	.11	55	25	3.8
5	4.1	14	.16	3.2	11	.09	45	18	2.1
6	3.9	12	.12	3.6	82	.72	39	17	1.7
7	3.6	11	.10	4.3	4	.05	35	16	1.5
8	3.5	12	.11	3.2	2	.02	60	338	166
9	3.2	12	.10	3.1	2	.02	34	125	13
10	5.6	11	.17	3.0	2	.02	26	33	2.5
11	4.2	10	.10	3.2	6	.05	27	12	.84
12	4.0	10	.10	4.7	15	.37	32	9	.81
13	3.6	8	.08	8.3	17	.50	28	9	.69
14	3.4	5	.05	27	167	63	27	11	.80
15	3.8	3	.04	37	183	21	28	16	1.1
16	17	73	9.1	30	149	16	25	19	1.3
17	26	117	9.8	21	96	6.3	24	16	1.0
18	13	52	2.3	16	66	3.8	22	10	.59
19	21	92	7.3	18	116	6.5	21	6	.36
20	62	1090	510	14	73	3.0	20	8	.46
21	39	93	12	8.1	30	.75	21	16	.84
22	21	15	.88	3.8	12	.14	19	21	1.1
23	13	10	.38	212	1870	3760	19	19	.95
24	9.2	5	.15	137	803	312	18	12	.57
25	6.9	3	.06	92	570	147	18	5	.24
26	5.7	4	.06	380	2650	10800	18	3	.14
27	5.1	5	.07	78	457	103	17	6	.29
28	4.5	8	.09	55	333	50	17	10	.42
29	4.1	11	.12	46	222	27	17	10	.44
30	4.4	15	.17	40	205	23	16	9	.38
31	---	---	---	39	188	20	---	---	---
TOTAL	335.2	---	561.25	1305.0	---	15364.90	1062	---	1241.82

## RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	15	7	.30	8.7	34	.85	3.2	3	.03
2	15	7	.30	6.8	14	.27	3.0	6	.05
3	15	8	.34	7.1	15	.28	3.0	8	.07
4	18	10	.47	9.1	34	1.2	3.0	10	.08
5	20	10	.53	21	112	16	3.0	10	.08
6	19	10	.50	18	148	9.6	3.4	10	.08
7	18	10	.49	6.7	42	.80	4.5	13	.20
8	19	11	.56	5.8	18	.26	31	195	58
9	19	10	.52	5.8	19	.32	15	62	3.6
10	17	10	.45	16	460	35	4.9	13	.18
11	17	10	.44	10	43	1.4	3.4	9	.08
12	17	10	.46	7.9	26	.56	2.8	5	.04
13	16	10	.44	6.5	21	.34	2.7	1	.01
14	16	13	.53	5.7	19	.29	2.4	1	.00
15	15	18	.70	5.9	17	.26	2.3	1	.00
16	15	19	.76	5.2	14	.19	2.5	1	.00
17	13	24	.86	4.5	12	.14	2.9	1	.00
18	14	29	1.1	4.3	12	.14	2.6	1	.00
19	13	22	.78	4.0	17	.18	2.4	1	.00
20	12	13	.41	11	60	7.2	3.8	1	.01
21	13	4	.13	16	56	4.0	4.2	1	.01
22	12	1	.03	8.0	3	.09	3.0	4	.03
23	11	1	.02	5.3	2	.03	3.4	11	.12
24	12	1	.03	4.4	2	.02	4.6	13	.18
25	12	1	.03	4.0	2	.02	3.6	11	.12
26	11	1	.02	3.8	2	.02	3.7	10	.10
27	9.2	2	.05	3.9	2	.02	3.2	8	.07
28	8.9	5	.13	3.7	1	.02	3.1	9	.08
29	8.0	10	.21	3.9	1	.01	6.3	20	.41
30	7.8	15	.31	3.5	1	.00	62	996	705
31	17	75	7.0	3.3	1	.01	---	---	---
TOTAL	444.9	---	18.90	229.8	---	79.52	198.9	---	768.63
YEAR	5389.36		44625.96						

## RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM	
JAN 1992								
05...	1715	320	6480	5600	43	50	64	
05...	1750	488	6230	8200	41	52	60	
05...	1910	2950	13800	110000	22	28	35	
MAR								
31...	1555	24	2720	176	42	58	64	
APR								
20...	1635	247	6950	4630	23	30	34	
MAY								
26...	0345	3000	11100	89900	8	10	12	
JUN								
01...	1420	404	5310	5800	25	28	33	
SEP								
09...	1535	235	8330	5280	11	15	19	
DATE		SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
JAN 1992								
05...	73	84	96	99	99.9	100	100	
05...	72	76	95	97	99	99.7	99.8	
05...	43	53	65	74	84	93	98	
MAR								
31...	72	78	98	98.4	99.2	99.7	99.8	
APR								
20...	49	59	71	85	94	98	99	
MAY								
26...	15	19	26	35	52	83	99	
JUN								
01...	40	50	68	81	92	99	99.8	
SEP								
09...	31	39	51	74	88	96	98	

## RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
15...	1740	2.6	75	0.5	88
JAN 1992					
05...	1655	393	7840	8320	78
05...	1800	704	7300	13800	92
MAR					
27...	1530	2.8	436	3.3	96
MAY					
16...	1756	41	200	22	99
23...	0945	116	805	252	88
23...	1817	381	1780	1830	79
24...	0127	195	1100	577	74
26...	0240	436	2640	3110	80
26...	0915	240	773	501	83
26...	1130	202	305	167	84
JUN					
01...	1505	1560	2100	8860	94
SEP					
30...	1520	274	8120	6000	56
30...	1635	432	3880	4520	91
30...	1705	239	5300	3420	87

## RIO JACAGUAS BASIN

50111500 RIO JACAGUAS AT JUANA DIAZ, PR

LOCATION.--Lat 18°03'16", long 66°30'40", Hydrologic Unit 21010004, on Highway 14 bridge, 0.4 mi (0.6 km) west of Juana Diaz plaza, and 4.0 mi (6.4 km) downstream from Lago Guayabal.

DRAINAGE AREA.--49.8 mi<sup>2</sup> (129.0 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records poor. Flow regulation from Lago Guayabal. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e12	e29	e45	e.86	e10	3.8	4.3	31	282	16	11	7.7
2	e16	e19	e41	e.54	e11	3.6	5.1	49	222	14	9.3	7.6
3	e17	e8.2	e43	e.24	e6.4	3.7	3.8	22	162	14	8.9	6.4
4	e17	e5.6	e44	e1.3	e6.4	3.8	4.0	11	136	31	8.7	6.0
5	e27	e5.1	e41	e93	5.9	3.4	4.3	8.4	120	47	48	5.9
6	e30	e9.3	e38	e3170	6.3	3.0	4.7	8.4	107	58	144	7.6
7	e34	e26	e34	e57	28	2.1	5.1	8.3	88	56	65	8.5
8	e69	e31	e31	e39	42	1.3	4.8	7.8	134	60	43	21
9	e65	e34	e32	e42	26	1.7	5.4	7.7	143	55	38	40
10	e72	e29	e34	e62	24	2.1	31	7.5	110	50	145	13
11	e74	e13	e30	e100	25	2.8	25	7.6	105	52	105	8.9
12	e76	e9.7	e26	e150	29	3.3	24	7.2	151	47	32	6.9
13	e85	e7.8	e23	e103	37	3.1	11	7.2	121	40	16	8.0
14	e73	e48	e24	e75	29	3.2	6.5	31	91	39	11	6.5
15	e19	e69	e22	e72	27	3.1	7.4	33	70	36	9.3	5.8
16	e9.3	e58	e23	e72	17	3.3	31	116	57	36	13	5.6
17	e9.9	e47	e24	e86	14	3.4	70	78	47	32	8.9	5.6
18	e3.4	e43	e23	e68	11	3.5	21	63	36	26	8.1	5.4
19	e2.0	e31	e21	e71	5.7	3.1	17	46	29	23	7.6	6.4
20	e1.5	e77	e20	e57	6.0	3.1	190	17	24	24	7.4	12
21	e1.3	e108	e17	e43	5.6	4.1	191	15	46	25	96	50
22	e16	e112	e11	e16	4.9	4.6	84	14	47	29	105	35
23	e17	e80	e9.3	e13	5.8	3.3	55	1010	28	14	36	33
24	e9.0	e49	e2.7	e17	4.9	3.2	41	542	27	8.7	24	39
25	e3.4	e60	e2.1	e15	4.1	3.2	34	293	25	7.0	16	31
26	e2.4	e116	e1.7	e9.7	4.2	3.1	28	2230	27	6.6	12	32
27	e2.3	e88	e2.0	e5.8	4.3	3.1	38	316	27	6.7	12	26
28	e4.6	e65	e2.5	e5.4	4.2	3.1	38	244	27	6.7	11	26
29	e14	e59	e3.9	e7.0	4.0	3.2	30	214	20	7.0	8.9	61
30	e22	e59	e3.5	e11	---	3.3	28	197	19	6.8	11	35
31	e32	---	e1.5	e13	---	3.3	---	166	---	11	7.4	---
TOTAL	836.1	1395.7	676.2	4475.84	408.7	97.9	1042.4	5808.1	2528	884.5	1078.5	562.8
MEAN	27.0	46.5	21.8	144	14.1	3.16	34.7	187	84.3	28.5	34.8	18.8
MAX	85	116	45	3170	42	4.6	191	2230	282	60	145	61
MIN	1.3	5.1	1.5	.24	4.0	1.3	3.8	7.2	19	6.6	7.4	5.4
AC-FT	1660	2770	1340	8880	811	194	2070	11520	5010	1750	2140	1120
CFSM	.54	.93	.44	2.90	.28	.06	.70	3.76	1.69	.57	.70	.38
IN.	.62	1.04	.51	3.34	.31	.07	.78	4.34	1.89	.66	.81	.42

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1992, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	157	115	43.3	32.1	9.11	5.24	9.20	81.0	45.4
MAX	445	287	151	144	16.9	7.94	34.7	215	198
(WY)	1986	1988	1988	1992	1991	1988	1992	1985	1987
MIN	8.65	10.5	9.99	5.88	4.82	3.16	3.19	2.68	2.72
(WY)	1987	1987	1989	1987	1990	1992	1991	1984	1984

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1984 - 1992

ANNUAL TOTAL	8327.6	19794.74	
ANNUAL MEAN	22.8	54.1	50.6
HIGHEST ANNUAL MEAN			80.9
LOWEST ANNUAL MEAN			13.0
HIGHEST DAILY MEAN	454	3170	4530
LOWEST DAILY MEAN	1.3	.24	.24
ANNUAL SEVEN-DAY MINIMUM	1.9	1.7	1.3
INSTANTANEOUS PEAK FLOW		20500	40000
INSTANTANEOUS PEAK STAGE		22.81	29.42
ANNUAL RUNOFF (AC-FT)	16520	39260	36620
ANNUAL RUNOFF (CFSM)	.46	1.09	1.02
ANNUAL RUNOFF (INCHES)	6.22	14.79	13.79
10 PERCENT EXCEEDS	61	94	110
50 PERCENT EXCEEDS	9.4	21	8.2
90 PERCENT EXCEEDS	2.8	3.3	3.4





## RIO INABON BASIN

50112500 RIO INABON AT REAL ABAJO, PR

LOCATION.--Lat 18°05'10", long 66°33'46", Hydrologic Unit 21010004, at bridge on private road, off Highway 511 at Hacienda La Concordia, 0.4 mi (0.6 km) upstream from diversion canal, 0.5 mi (0.8 km) north of Real Abajo, and 6.1 mi (9.8 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--9.70 mi<sup>2</sup> (25.12 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1962-63 (annual low-flow measurements only), February to June 1964 (monthly measurements only), July 1964 to July 1970, April 1971 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map. Prior to April 1971 nonrecording gage and crest-stage gage at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	55	11	8.4	8.3	4.9	25	13	9.8	11	16	10
2	14	31	9.9	12	7.7	4.5	42	11	9.9	10	12	9.9
3	11	24	11	10	7.2	4.5	21	10	9.8	9.9	11	9.6
4	9.9	21	13	13	7.5	4.9	9.3	9.6	9.1	8.5	16	9.9
5	9.7	19	11	173	7.1	4.8	7.3	9.9	7.5	8.0	41	9.6
6	11	18	9.5	686	e32	4.6	6.2	16	6.5	8.2	22	12
7	19	18	8.8	89	e22	4.5	5.3	12	7.3	8.1	11	62
8	18	16	9.0	44	e23	4.7	4.3	8.1	13	8.7	11	42
9	21	29	8.7	33	14	6.5	8.7	7.1	22	8.4	15	23
10	14	23	8.2	27	11	8.4	9.3	7.6	8.5	7.6	52	20
11	11	16	8.1	30	10	5.1	6.1	7.6	12	7.3	33	17
12	11	15	7.3	34	9.8	4.5	6.5	15	23	7.7	20	13
13	10	15	7.1	24	8.4	4.4	6.5	9.6	17	7.2	15	11
14	10	15	7.2	21	8.1	4.3	7.3	11	11	6.9	12	11
15	9.4	15	7.2	19	7.6	4.3	11	12	8.3	7.1	11	26
16	8.6	15	7.4	18	7.3	4.2	16	10	6.6	6.9	10	17
17	8.3	15	7.4	16	7.0	4.4	19	7.4	5.7	6.9	9.6	14
18	11	14	6.7	14	6.0	5.0	16	6.1	5.1	11	9.8	11
19	12	15	6.6	13	6.0	5.0	29	4.9	6.6	10	8.7	10
20	9.4	15	9.8	12	6.2	5.1	89	4.3	8.6	7.2	8.1	17
21	24	15	11	12	6.0	5.8	67	4.1	14	6.5	36	14
22	38	16	5.9	11	5.6	5.3	34	4.0	9.3	5.6	18	12
23	22	16	5.9	11	5.3	4.4	25	146	8.3	5.5	11	21
24	15	15	5.6	11	6.0	4.6	21	96	13	5.6	8.5	17
25	13	12	5.4	11	6.1	4.7	17	64	15	6.0	8.5	21
26	12	12	5.2	11	6.1	4.5	15	198	13	5.6	8.4	21
27	11	14	5.1	9.8	6.1	8.0	14	40	12	5.3	10	16
28	10	12	4.5	9.6	5.7	11	13	22	9.5	5.1	7.9	31
29	25	12	4.0	9.6	5.2	21	12	16	12	4.6	9.7	25
30	26	12	3.8	9.1	---	12	12	12	12	4.5	10	53
31	50	---	5.9	8.6	---	27	---	17	---	19	11	---
TOTAL	490.3	540	237.2	1410.1	268.3	206.9	574.8	811.3	325.4	239.9	483.2	586.0
MEAN	15.8	18.0	7.65	45.5	9.25	6.67	19.2	26.2	10.8	7.74	15.6	19.5
MAX	50	55	13	686	32	27	89	198	23	19	52	62
MIN	8.3	12	3.8	8.4	5.2	4.2	4.3	4.0	5.1	4.5	7.9	9.6
AC-FT	973	1070	470	2800	532	410	1140	1610	645	476	958	1160
CFSM	1.63	1.86	.79	4.69	.95	.69	1.98	2.70	1.12	.80	1.61	2.01
IN.	1.88	2.07	.91	5.41	1.03	.79	2.20	3.11	1.25	.92	1.85	2.25

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1992, BY WATER YEAR (WY)

	MEAN	48.5	35.5	12.9	8.71	5.28	5.72	8.00	19.5	16.5	12.4	17.6	33.7
MAX	148	77.9	26.5	45.5	9.25	16.4	19.2	76.7	49.8	32.7	46.1	119	
(WY)	1986	1978	1966	1992	1992	1972	1992	1969	1969	1979	1979	1975	
MIN	15.4	8.32	4.43	4.11	3.05	1.85	2.76	1.94	2.75	1.77	4.47	7.70	
(WY)	1983	1977	1977	1989	1977	1977	1975	1967	1967	1990	1974	1986	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1964 - 1992

ANNUAL TOTAL	4662.1	6173.4	
ANNUAL MEAN	12.8	16.9	18.6
HIGHEST ANNUAL MEAN			30.9
LOWEST ANNUAL MEAN			9.57
HIGHEST DAILY MEAN	115	Jul 16	2500
LOWEST DAILY MEAN	3.2	Apr 26	.80
ANNUAL SEVEN-DAY MINIMUM	3.5	Apr 24	1.1
INSTANTANEOUS PEAK FLOW			19000
INSTANTANEOUS PEAK STAGE			25.30
ANNUAL RUNOFF (AC-FT)	9250	12240	13460
ANNUAL RUNOFF (CFSM)	1.32	1.74	1.92
ANNUAL RUNOFF (INCHES)	17.88	23.68	26.02
10 PERCENT EXCEEDS	24	25	41
50 PERCENT EXCEEDS	9.9	11	9.1
90 PERCENT EXCEEDS	4.8	5.2	3.1

## RIO BUCANA BASIN

50113800 RIO CERRILLOS ABOVE LAGO CERRILLOS NEAR PONCE, PR

LOCATION.--Lat 18°07'01", long 66°36'17", Hydrologic Unit 21010004, on right bank, 0.3 mi (0.5 km) downstream from confluence with Rio San Patricio, 0.1 mi (0.2 km) southwest of Hwy 139 and 2.4 mi (3.7 km) northwest of Maragüez.

DRAINAGE AREA.-- 15.4 mi<sup>2</sup> (39.9 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 720 ft (210 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	34	18	9.0	14	9.2	28	13	51	17	19	16
2	26	18	18	10	13	8.8	69	13	44	16	16	15
3	23	13	e25	7.8	13	8.8	29	12	40	16	15	14
4	21	12	e29	7.1	12	8.5	15	11	36	15	39	14
5	19	11	e26	331	12	9.1	14	11	32	14	75	14
6	19	13	e25	717	34	8.5	12	15	29	14	56	51
7	30	13	e24	136	24	8.4	11	13	27	14	24	168
8	22	13	e25	64	23	9.1	10	11	34	14	21	81
9	38	26	e22	50	16	34	11	12	33	13	37	43
10	20	19	21	41	15	20	12	12	29	12	102	96
11	17	15	20	43	16	11	14	12	38	12	64	68
12	15	13	19	49	15	9.3	14	17	62	12	52	40
13	14	13	18	33	13	9.4	11	17	54	12	41	34
14	17	14	18	27	12	9.3	12	17	46	12	38	29
15	15	14	16	26	12	9.4	26	21	40	12	30	57
16	13	14	16	24	11	9.3	21	23	35	12	23	44
17	12	15	16	23	11	9.4	28	19	34	12	20	34
18	42	15	15	20	11	10	19	18	32	49	18	34
19	18	15	15	20	10	9.3	52	19	30	22	16	34
20	14	15	17	19	10	9.7	65	18	27	19	15	33
21	16	15	20	18	10	9.7	49	13	37	17	64	32
22	33	15	14	18	9.7	10	27	12	25	16	27	32
23	18	15	13	16	9.7	9.7	20	281	23	15	18	51
24	14	15	12	16	9.3	10	17	207	21	15	16	38
25	13	15	12	16	9.3	10	15	206	21	15	15	33
26	12	17	11	17	9.5	12	14	205	21	14	18	31
27	12	18	11	16	9.9	15	13	108	20	15	18	26
28	11	19	10	14	9.8	15	13	68	19	15	16	46
29	48	19	9.6	14	9.3	15	13	55	18	15	19	37
30	83	18	8.8	14	---	12	13	48	18	15	17	30
31	77	---	8.5	14	---	16	---	54	---	43	16	---
TOTAL	764	481	532.9	1829.9	383.5	354.9	667	1561	976	514	965	1275
MEAN	24.6	16.0	17.2	59.0	13.2	11.4	22.2	50.4	32.5	16.6	31.1	42.5
MAX	83	34	29	717	34	34	69	281	62	49	102	168
MIN	11	11	8.5	7.1	9.3	8.4	10	11	18	12	15	14
AC-FT	1520	954	1060	3630	761	704	1320	3100	1940	1020	1910	2530
CFSM	2.07	1.35	1.44	4.96	1.11	.96	1.87	4.23	2.73	1.39	2.62	3.57
IN.	2.39	1.50	1.67	5.72	1.20	1.11	2.09	4.88	3.05	1.61	3.02	3.99

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	MEAN	89.9	34.8	16.4	22.0	8.83	13.0	15.4	20.9	22.6	15.0	31.0	58.5
MAX	154	50.2	18.2	59.0	13.2	27.5	24.3	50.4	36.5	26.7	53.1	88.0	
(WY)	1991	1991	1991	1992	1992	1989	1989	1992	1989	1991	1991	1989	
MIN	24.6	16.0	13.3	7.46	6.34	4.77	6.38	4.58	6.37	4.66	11.4	30.4	
(WY)	1992	1992	1989	1989	1990	1990	1990	1990	1990	1990	1990	1991	

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1989 - 1992
ANNUAL TOTAL	7118.4	10304.2	
ANNUAL MEAN	19.5	28.2	
HIGHEST ANNUAL MEAN			28.2
LOWEST ANNUAL MEAN			33.4
HIGHEST DAILY MEAN	163	717	717
LOWEST DAILY MEAN	4.8	7.1	3.3
ANNUAL SEVEN-DAY MINIMUM	4.8	8.7	3.5
INSTANTANEOUS PEAK FLOW		8140	8140
INSTANTANEOUS PEAK STAGE		9.65	9.65
INSTANTANEOUS LOW FLOW		7.0	3.3
ANNUAL RUNOFF (AC-FT)	14120	20440	20410
ANNUAL RUNOFF (CFSM)	1.64	2.37	2.37
ANNUAL RUNOFF (INCHES)	22.25	32.21	32.16
10 PERCENT EXCEEDS	36	49	64
50 PERCENT EXCEEDS	14	16	14
90 PERCENT EXCEEDS	5.7	10	4.9

## RIO BUCANA BASIN

50114000 RIO CERRILLOS NEAR PONCE, PR

LOCATION.--Lat 18°04'15", long 66°34'51", Hydrologic Unit 21010004, on right bank off Highway 139, 0.8 mi (1.3 km) below Lago Cerrillos Dam, 2.3 mi (3.7 km) upstream from Quebrada Ausubo and 4.6 mi (7.4 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--17.8 mi<sup>2</sup> (46.1 km<sup>2</sup>), excludes 17.4 mi<sup>2</sup> (45.1 km<sup>2</sup>), upstream from Lago Cerrillos Dam.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to April 1964 (monthly measurements only), May 1964 to June 1985, July 1985 to April 1991 (semi-monthly measurements only), May 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 253.10 ft (77.145 m), above mean sea level. Prior to March 22, 1977 at site 0.15 mi (0.24 km) upstream and datum 9.90 ft (3.018 m) higher.

REMARKS.--Records poor. Flow regulated by Lago Cerrillos Dam since May 1991. Gage-height and precipitation satellite telemetry at station. Prior to June 1985 some low-flow regulation by construction upstream. Maximum discharge prior to regulation, 22,400 ft<sup>3</sup>/s (6.34 m<sup>3</sup>/s), Sept. 16, 1975, gage-height, 11.2 ft (3.414 m), site and datum then in use from floodmarks, from rating curve extended above 150 ft<sup>3</sup>/s (4.25 m<sup>3</sup>/s), on basis of slope-area measurements of peak flow; minimum discharge prior to regulation, 2.2 ft<sup>3</sup>/s (0.062 m<sup>3</sup>/s), May 28, 1967.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e41	e35	e12	e8.4	15	8.1	26	9.9	51	17	20	20
2	e33	e21	e12	e10	14	7.8	19	10	46	16	12	1.8
3	e29	e16	e16	e9.2	14	7.8	84	8.8	42	16	11	1.9
4	e26	e15	e19	e8.6	14	8.1	16	7.8	38	16	22	1.9
5	e24	e13	e17	e450	13	8.5	11	7.5	32	17	80	1.7
6	e24	e16	e15	e900	34	7.5	9.3	10	31	15	71	2.0
7	e39	e17	e13	e150	32	7.5	8.1	13	29	14	24	2.0
8	e28	e17	e15	e78	30	7.8	7.2	7.9	33	12	18	57
9	e45	e33	e13	e60	19	23	6.9	7.5	62	15	32	118
10	e25	e25	e11	e52	16	38	11	6.5	35	14	103	79
11	e22	e19	e10	e54	16	12	8.1	6.2	39	14	65	83
12	e19	e15	e9.6	e62	19	10	15	6.6	74	16	46	123
13	e18	e14	e9.4	e40	15	9.9	8.5	18	62	12	42	114
14	e22	e14	e9.4	e35	14	9.6	9.2	16	47	9.6	32	78
15	e19	e12	e9.0	e33	14	9.8	26	24	44	12	29	83
16	e16	e13	e9.0	e31	13	9.7	33	25	32	12	24	90
17	e15	e12	e9.0	e29	12	9.3	32	17	29	11	20	60
18	e48	e12	e8.6	e25	12	10	23	18	28	51	11	2.1
19	e22	e11	e8.6	e25	11	9.2	55	13	26	28	.64	2.2
20	e18	e12	e9.6	e24	11	7.6	102	17	24	22	1.1	2.6
21	e20	e12	e15	e23	11	11	81	11	35	16	4.2	2.1
22	e42	e11	e13	e23	10	10	37	10	25	14	3.0	1.9
23	e23	e12	e12	e20	10	8.8	22	366	22	12	2.3	2.0
24	e18	e11	e11	e20	10	9.6	17	262	21	11	1.7	2.1
25	e17	e10	e11	e20	9.5	9.9	15	185	19	11	1.6	2.2
26	e15	e9.8	e10	e22	10	10	12	317	18	11	1.6	2.3
27	e15	e12	e10	e21	9.9	11	12	122	18	13	1.6	2.1
28	e14	e13	e9.4	e18	9.9	15	11	76	17	11	1.7	2.0
29	e60	e13	e9.0	e18	8.8	9.9	9.9	55	16	9.5	2.0	2.0
30	e102	e12	e8.6	e16	---	7.6	9.9	49	16	8.9	1.9	2.4
31	e97	---	e8.0	15	---	5.2	---	53	---	39	2.2	---
TOTAL	956	457.8	352.2	2300.2	427.1	329.2	737.1	1755.7	1011	496.0	687.54	944.3
MEAN	30.8	15.3	11.4	74.2	14.7	10.6	24.6	56.6	33.7	16.0	22.2	31.5
MAX	102	35	19	900	34	38	102	366	74	51	103	123
MIN	14	9.8	8.0	8.4	8.8	5.2	6.9	6.2	16	8.9	.64	1.7
AC-FT	1900	908	699	4560	847	653	1460	3480	2010	984	1360	1870
CFSM	1.73	.86	.64	4.17	.83	.60	1.38	3.18	1.89	.90	1.25	1.77
IN.	2.00	.96	.74	4.81	.89	.69	1.54	3.67	2.11	1.04	1.44	1.97

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1992, BY WATER YEAR (WY)

	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
MEAN	30.8	15.3	11.4	74.2	14.7	10.6	24.6	35.6	24.1	20.3	22.6	23.5
MAX	30.8	15.3	11.4	74.2	14.7	10.6	24.6	56.6	33.7	24.6	23.1	31.5
(WY)	1992	1992	1992	1992	1992	1992	1992	1992	1992	1991	1991	1992
MIN	30.8	15.3	11.4	74.2	14.7	10.6	24.6	14.5	14.5	16.0	22.2	15.4
(WY)	1992	1992	1992	1992	1992	1992	1992	1991	1991	1992	1992	1991

## SUMMARY STATISTICS

## FOR 1992 WATER YEAR

## WATER YEARS 1991 - 1992

ANNUAL TOTAL	10454.14	
ANNUAL MEAN	28.6	28.6
HIGHEST ANNUAL MEAN		28.6
LOWEST ANNUAL MEAN		28.6
HIGHEST DAILY MEAN	900	900
LOWEST DAILY MEAN	.64	.64
ANNUAL SEVEN-DAY MINIMUM	1.7	1.7
INSTANTANEOUS PEAK FLOW	1100	1100
INSTANTANEOUS PEAK STAGE	6.07	6.07
ANNUAL RUNOFF (AC-FT)	20740	20690
ANNUAL RUNOFF (CFSM)	1.60	1.60
ANNUAL RUNOFF (INCHES)	21.85	21.80
10 PERCENT EXCEEDS	55	45
50 PERCENT EXCEEDS	15	14
90 PERCENT EXCEEDS	6.8	7.8

## RIO BUCANA BASIN

50114000 RIO CERRILLOS NEAR PONCE, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD - UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MP (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CaCO3)
OCT 1991												
09...	1515	33	360	8.2	25.5	15	7.8	95	<10	K930	550	120
DEC												
18...	1200	8.4	309	8.2	23.5	1.3	9.0	107	<10	20	70	--
FEB 1992												
18...	1055	12	343	8.0	26.0	1.6	9.4	112	<10	10	20	--
MAY												
07...	1100	14	300	7.9	24.5	2.1	8.6	103	<10	K150	K160	130
JUN												
23...	1130	24	315	7.0	27.5	1.9	9.0	109	<10	K10	40	--
AUG												
27...	1030	1.6	784	7.9	26.0	8.0	6.4	78	<10	370	210	330

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 1991												
09...	39	6.6	9.9	0.4	1.1	140	<0.5	22	13	<0.10	24	200
DEC												
18...	--	--	--	--	--	130	--	--	--	--	--	--
FEB 1992												
18...	--	--	--	--	--	140	--	--	--	--	--	--
MAY												
07...	40	6.5	12	0.5	1.2	150	<0.5	22	7.8	0.10	19	199
JUN												
23...	--	--	--	--	--	130	--	--	--	--	--	--
AUG												
27...	110	13	32	0.8	1.5	180	--	160	16	0.20	25	471

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)
OCT 1991												
09...	18.0	13	--	<0.010	0.440	0.020	<0.20	0.040	1	<100	30	3
DEC												
18...	--	1	--	<0.010	0.290	<0.010	<0.20	0.020	--	--	--	--
FEB 1992												
18...	--	5	--	<0.010	0.670	0.030	<0.20	0.030	--	--	--	--
MAY												
07...	7.61	<1	0.400	0.010	0.410	<0.010	<0.20	0.020	<1	<100	30	<1
JUN												
23...	--	14	--	<0.010	0.500	0.040	<0.20	0.040	--	--	--	--
AUG												
27...	2.03	14	11.0	0.040	11.0	0.060	<0.20	<0.010	--	--	--	--

K = non-ideal count

### RIO BUCANA BASIN

50114000 RIO CERRILLOS NEAR PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

## RIO BUCANA BASIN

50114390 RIO BUCANA AT HWY 14 BRIDGE NEAR PONCE, PR

LOCATION.--Lat 18°02'29", long 66°34'58", Hydrologic Unit 21010004, on left bank, 200 ft (61 m) upstream from bridge on Highway 14 and 4.0 mi (6.4 km) downstream from Lago Cerrillos Dam, 2.8 mi (4.5 km) northeast of Degetau Plaza in Ponce.

DRAINAGE AREA.--24.9 mi<sup>2</sup> (64.5 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to September 1986 (maximum only), published as "Rio Bucaná Floodway Channel at Highway 14 bridge", October 1986 to July 1987 (maximum only), August 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 116.40 ft (35.500 m) above mean sea level. Prior to Oct. 1, 1986, crest-stage gage located at Highway 14 bridge, at elevation of mean sea level.

REMARKS.--Records poor. Only minor regulation of low flow until Aug. 18, afterward flow regulated by Lago Cerrillos Dam 0.4 mi upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	250	9.1	14	14	7.3	e9.6	16	e30	e18	21	3.4
2	30	34	9.9	18	14	7.0	e11	15	e28	e17	15	5.3
3	18	20	11	16	13	6.9	86	13	e23	e17	14	3.9
4	14	17	13	15	13	7.0	.17	11	e29	e17	19	3.4
5	14	21	12	107	13	8.1	e15	9.4	e22	e17	39	2.8
6	13	16	11	4340	29	7.5	e12	14	e20	e17	41	2.8
7	18	20	12	2840	97	7.3	e11	27	e17	e18	21	9.0
8	38	18	12	725	51	7.5	e10	10	e19	e17	17	11
9	50	21	15	349	25	11	e9.0	7.3	e21	e17	23	50
10	52	49	15	233	17	127	e12	8.0	e37	e16	43	43
11	28	17	15	185	16	14	e13	7.2	e24	e14	38	37
12	28	13	15	438	23	11	e8.8	7.7	e44	e17	28	53
13	23	12	15	205	15	11	e9.8	21	e64	e18	28	50
14	23	11	15	132	13	10	15	e17	e48	e15	21	41
15	28	12	14	102	14	e9.6	51	e14	e32	e11	22	39
16	20	11	14	88	13	e9.6	78	e10	e30	e11	19	38
17	17	14	14	82	12	e9.4	62	e10	e28	e11	17	40
18	28	12	14	67	10	e8.6	55	e20	e26	e10	14	13
19	86	11	13	57	9.7	e8.8	42	e30	e24	e90	8.5	3.0
20	18	11	15	57	8.9	e9.0	184	e13	e24	e69	7.6	3.9
21	25	11	22	55	8.9	e8.8	194	e12	e24	e48	14	3.3
22	44	11	16	50	9.0	e8.8	113	e9.6	e44	e28	6.8	4.0
23	89	10	15	47	9.6	e8.6	81	e9.4	e28	e15	5.7	3.0
24	19	11	15	42	9.7	e8.0	35	e580	e25	e14	6.4	2.8
25	16	10	15	39	11	e8.6	30	e290	e23	e13	6.0	3.2
26	14	10	15	37	8.8	e8.4	31	e1350	e22	e13	5.5	3.0
27	13	28	14	32	8.6	e8.2	22	e175	e21	e13	4.8	2.8
28	12	34	14	26	8.6	e8.0	23	e115	e19	e12	4.3	2.5
29	13	29	14	23	8.0	e16	18	e55	e19	e12	3.7	2.6
30	218	10	14	17	---	e24	17	e32	e19	e11	3.3	4.6
31	319	---	14	16	---	e21	---	e32	---	e12	2.8	---
TOTAL	1346	754	432.0	10454	502.8	426.0	1275.2	2940.6	834	628	519.4	484.3
MEAN	43.4	25.1	13.9	337	17.3	13.7	42.5	94.9	27.8	20.3	16.8	16.1
MAX	319	250	22	4340	97	127	194	1350	64	90	43	53
MIN	12	10	9.1	14	8.0	6.9	8.8	7.2	17	10	2.8	2.5
AC-FT	2670	1500	857	20740	997	845	2530	5830	1650	1250	1030	961
CFSM	1.74	1.01	.56	13.5	.70	.55	1.71	3.81	1.12	.81	.67	.65
IN.	2.01	1.13	.65	15.62	.75	.64	1.91	4.39	1.25	.94	.78	.72

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1992, BY WATER YEAR (WY)

	1987	1988	1989	1990	1991	1992
MEAN	216	98.9	23.4	78.9	11.4	18.0
MAX	527	222	49.1	337	17.3	48.0
(WY)	1991	1988	1988	1992	1989	1992
MIN	43.4	25.1	13.9	9.84	7.39	5.81
(WY)	1992	1992	1992	1989	1989	1990

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1987 - 1992

ANNUAL TOTAL	10831.7	20596.3	
ANNUAL MEAN	29.7	56.3	
HIGHEST ANNUAL MEAN			62.2
LOWEST ANNUAL MEAN			78.0
HIGHEST DAILY MEAN	531	Aug 22	4340
LOWEST DAILY MEAN	4.8	Apr 17	2.5
ANNUAL SEVEN-DAY MINIMUM	5.4	Mar 9	2.8
INSTANTANEOUS PEAK FLOW			9890
INSTANTANEOUS PEAK STAGE			12.45
ANNUAL RUNOFF (AC-FT)	21480	40850	45040
ANNUAL RUNOFF (CFSM)	1.19	2.26	2.50
ANNUAL RUNOFF (INCHES)	16.18	30.77	33.92
10 PERCENT EXCEEDS	54	58	122
50 PERCENT EXCEEDS	13	15	15
90 PERCENT EXCEEDS	6.8	7.5	6.5

## RIO PORTUGUES BASIN

50115000 RIO PORTUGUES NEAR PONCE, PR

LOCATION.--Lat 18°04'45", long 66°38'01", Hydrologic Unit 21010004, on right bank 30 ft (9 m) upstream from bridge on Highway 504, 0.2 mi (0.3 km) upstream from small unnamed tributary, 4.4 mi (7.1 km) upstream from Rio Chiquito, and 4.7 mi (7.6 km) north of Plaza Degetau in Ponce.

DRAINAGE AREA.--8.82 mi<sup>2</sup> (22.84 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to June 1964 (monthly measurements only), July 1964 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 470 ft (143 m), from topographic map. Prior to Dec. 4, 1964, non-recording gage at same site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some low-flow regulation due to unknown activity upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	12	3.3	14	e3.6	3.2	36	e3.2	13	7.8	8.2	6.6
2	8.0	8.0	3.2	6.8	e3.3	3.3	46	e3.1	10	7.7	5.5	6.5
3	6.8	6.6	3.4	2.6	e3.3	3.4	26	e3.0	13	7.8	5.3	5.9
4	5.3	5.9	3.9	2.0	e3.3	3.6	8.3	e2.8	9.8	7.8	13	5.6
5	5.1	e5.3	3.1	212	5.6	3.6	5.8	e3.1	8.6	8.0	37	5.5
6	4.8	e5.0	3.0	794	25	3.4	5.0	e4.1	7.9	8.2	28	33
7	7.0	e4.8	3.0	67	25	3.4	4.5	4.9	8.6	7.9	9.1	59
8	6.3	e14	2.8	19	29	3.3	4.1	3.2	9.7	7.7	7.3	48
9	5.1	14	2.8	9.8	10	25	5.8	3.0	17	7.0	17	27
10	7.6	15	2.9	7.0	8.1	24	e6.4	2.9	11	6.4	31	65
11	6.1	7.6	2.9	e8.7	8.2	6.0	4.1	2.8	13	7.7	22	42
12	e4.9	e6.4	2.8	e31	7.7	4.8	4.9	3.0	29	8.4	35	17
13	e4.9	e5.2	2.6	e58	7.2	4.4	4.0	7.6	21	6.4	29	22
14	e6.0	e4.5	2.6	e39	6.7	4.4	3.7	8.2	15	4.7	19	12
15	e4.3	e3.8	2.5	e19	6.1	4.3	6.3	e5.0	14	4.8	14	8.6
16	e3.8	e3.5	2.6	e14	6.0	4.1	7.6	e5.0	13	4.5	10	9.5
17	e6.7	e4.4	2.7	e13	6.0	4.2	5.9	e9.5	12	4.5	8.8	8.0
18	e18	e3.9	2.6	e12	5.7	4.3	4.7	14	11	43	8.0	6.4
19	e4.0	e3.5	2.5	e10	5.8	4.2	5.2	6.4	11	21	7.3	8.1
20	e9.7	3.5	2.6	e9.1	5.4	4.2	11	5.3	11	14	6.8	19
21	e19	3.4	3.3	e7.8	5.0	4.2	19	4.3	20	7.6	45	12
22	e14	3.3	2.4	e7.8	4.6	4.0	11	4.3	12	6.6	21	47
23	e5.9	3.2	2.4	e7.3	4.3	3.7	5.9	252	11	5.8	11	29
24	e5.0	3.1	2.4	e6.8	3.9	4.0	4.3	123	10	5.5	8.9	15
25	e4.4	3.0	2.5	e6.3	3.7	3.9	3.8	87	10	5.7	8.0	25
26	e4.2	3.9	2.3	e5.8	3.6	3.8	3.5	104	10	5.6	7.5	24
27	e4.0	5.4	2.2	e5.3	3.7	7.1	e3.3	36	10	5.4	6.8	11
28	e3.8	5.6	2.2	e4.8	3.8	11	e3.2	16	9.8	5.4	6.6	17
29	e50	4.1	2.1	e4.3	3.6	8.9	e3.2	11	10	5.3	7.8	18
30	e70	3.5	2.2	e3.8	---	4.4	e3.2	9.1	9.0	5.4	7.9	8.6
31	e54	---	2.2	e3.6	---	8.8	---	13	---	9.8	6.4	---
TOTAL	368.7	175.4	84.0	1411.6	217.2	184.9	265.7	759.8	370.4	263.4	458.2	621.3
MEAN	11.9	5.85	2.71	45.5	7.49	5.96	8.86	24.5	12.3	8.50	14.8	20.7
MAX	70	15	3.9	794	29	25	46	252	29	43	45	65
MIN	3.8	3.0	2.1	2.0	3.3	3.2	3.2	2.8	7.9	4.5	5.3	5.5
AC-FT	731	348	167	2800	431	367	527	1510	735	522	909	1230
CFSM	1.35	.66	.31	5.16	.85	.68	1.00	2.78	1.40	.96	1.68	2.35
IN.	1.56	.74	.35	5.95	.92	.78	1.12	3.20	1.56	1.11	1.93	2.62

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1992, BY WATER YEAR (WY)

	MEAN	43.4	33.5	12.5	8.81	6.13	5.74	7.08	19.3	14.9	14.6	20.7	35.3
MAX	116	80.1	27.3	45.5	13.3	13.4	27.1	72.9	48.3	54.2	87.5	132	
(WY)	1991	1988	1988	1992	1976	1976	1983	1985	1979	1979	1979	1975	
MIN	11.9	5.85	2.71	3.65	2.62	2.08	2.45	1.65	2.33	2.65	4.20	7.22	
(WY)	1992	1992	1992	1989	1989	1977	1974	1973	1974	1976	1972	1991	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1964 - 1992

ANNUAL TOTAL	2959.6	5180.6	
ANNUAL MEAN	8.11	14.2	
HIGHEST ANNUAL MEAN			18.5
LOWEST ANNUAL MEAN			38.0
HIGHEST DAILY MEAN	75	Aug 22	794
LOWEST DAILY MEAN	2.1	Dec 29	2.0
ANNUAL SEVEN-DAY MINIMUM	2.2	Dec 25	2.2
INSTANTANEOUS PEAK FLOW			6790
INSTANTANEOUS PEAK STAGE			14.01
INSTANTANEOUS LOW FLOW			2.0
ANNUAL RUNOFF (AC-FT)	5870	10280	13390
ANNUAL RUNOFF (CFSM)		1.60	2.10
ANNUAL RUNOFF (INCHES)	12.48	21.85	28.48
10 PERCENT EXCEEDS	15	25	40
50 PERCENT EXCEEDS	5.2	6.4	8.2
90 PERCENT EXCEEDS	3.0	3.1	3.1



## RIO PORTUGUES BASIN

50115000 RIO PORTUGUES NEAR PONCE, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991											
03...	1135	2.6	277	8.7	25.5	1.8	8.5	105	<10	310	290
DEC 31...	0940	2.5	310	8.1	20.5	0.60	8.6	92	<10	K130	260
FEB 1992											
20...	0935	5.3	310	7.4	21.5	0.60	9.0	114	14	K40	K240
MAY 06...	0915	3.7	309	7.7	23.5	0.60	7.9	93	<10	K10	770
JUL 01...	1035	4.8	307	8.0	25.5	14	8.6	96	<10	K66	K100
SEP 01...	1020	6.9	290	8.5	24.7	0.60	7.8	80	<10	60	K110

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 1991										
03...	120	39	6.6	9.8	0.4	1.1	130	<0.5	8.8	9.2
DEC 31...	--	--	--	--	--	--	150	--	--	--
FEB 1992										
20...	--	--	--	--	--	--	140	--	--	--
MAY 06...	140	43	7.5	14	0.5	1.8	130	0.8	8.5	10
JUL 01...	--	--	--	--	--	--	140	--	--	--
SEP 01...	130	40	6.5	9.6	0.4	1.3	120	--	7.4	9.0

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
03...	<0.10	22	174	1.22	4	--	<0.010	0.580	0.010	--
DEC 31...	--	--	--	--	1	--	<0.010	0.610	0.010	--
FEB 1992										
20...	--	--	--	--	2	--	<0.010	0.310	0.030	0.17
MAY 06...	<0.10	18	181	1.80	<1	0.440	0.010	0.450	<0.010	--
JUL 01...	--	--	--	--	7	0.990	0.010	1.00	0.020	0.18
SEP 01...	0.10	18	173	3.22	1	--	<0.010	0.680	0.030	--

K = non-ideal count

**RIO PORTUGUES BASIN**

50115000 RIO PORTUGUES NEAR PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
03...	<0.20	--	--	0.020	<1	<100	--	<1	1	<10
DEC										
31...	<0.20	--	--	0.040	--	--	--	--	--	--
FEB 1992										
20...	0.20	0.51	2.3	0.040	--	--	--	--	--	--
MAY										
06...	<0.20	--	--	0.030	<1	100	20	<1	<1	<10
JUL										
01...	0.20	1.2	5.3	0.030	--	--	--	--	--	--
SEP										
01...	<0.20	--	--	0.020	--	--	--	--	--	--

[illegible]

RIO PORTUGUES BASIN  
50116200 RIO PORTUGUES AT PONCE, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'20", long 66°36'28", 1,300 ft (400 m) south of Las Americas Avenue Bridge, 1.2 mi (1.9 km) south of CSC 50115900, 0.8 mi (1.3 km) west of Highways 1 and 2 junction, and 0.7 mi (1.1 km) southeast of Ponce.

DRAINAGE AREA.--18.9 mi<sup>2</sup> (49.0 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
NOV 1991											
04...	1035	3.2	470	7.5	24.5	4.0	5.7	68	15	2800	590
JAN 1992											
02...	1055	7.3	410	7.4	23.0	14	6.6	79	11	3300	K17000
FEB											
19...	1110	2.6	515	7.8	24.5	1.9	6.6	74	14	K7600	300
MAY											
06...	1120	4.8	672	7.1	27.0	13	3.3	41	18	K7400	570
JUL											
01...	1145	7.5	485	7.7	27.5	16	7.9	96	10	2900	290
SEP											
01...	1140	3.4	485	8.0	27.0	2.0	6.7	81	13	K7000	60

DATE	HARD- NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 1991										
04...	160	48	10	37	1	1.6	150	<0.5	63	40
JAN 1992										
02...	--	--	--	--	--	--	105	--	--	--
FEB										
19...	--	--	--	--	--	--	180	--	--	--
MAY										
06...	190	57	12	58	2	2.4	160	0.6	85	54
JUL										
01...	--	--	--	--	--	--	145	--	--	--
SEP										
01...	160	46	10	35	1	1.6	140	--	57	34

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
NOV 1991										
04...	0.20	22	312	2.65	7	0.390	0.010	0.400	0.070	0.23
JAN 1992										
02...	--	--	--	--	17	0.660	0.030	0.690	0.070	0.43
FEB										
19...	--	--	--	--	3	0.250	0.040	0.290	0.130	0.37
MAY										
06...	0.20	20	385	4.98	29	0.470	0.120	0.590	0.660	0.44
JUL										
01...	--	--	--	--	33	0.043	0.010	0.530	0.030	0.27
SEP										
01...	0.20	17	288	2.64	<1	0.056	0.040	0.096	0.180	0.42

K = non-ideal count

## RIO PORTUGUES BASIN

50116200 RIO PORTUGUES AT PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
NOV 1991										
04...	0.30	0.70	3.1	0.020	<1	<100	140	<1	1	50
JAN 1992										
02...	0.50	1.2	5.3	0.080	--	--	--	--	--	--
FEB										
19...	0.50	0.79	3.5	0.080	--	--	--	--	--	--
MAY										
06...	1.1	1.7	7.5	0.150	<1	<100	160	<1	1	<10
JUL										
01...	0.30	0.35	1.6	0.010	--	--	--	--	--	--
SEP										
01...	0.60	0.70	3.1	0.150	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
NOV 1991										
04...	380	3	40	<0.10	<1	<1	<10	<0.010	1	0.03
JAN 1992										
02...	--	--	--	--	--	--	--	--	--	--
FEB										
19...	--	--	--	--	--	--	--	--	--	--
MAY										
06...	1400	2	190	<0.10	<1	<1	20	<0.010	2	0.07
JUL										
01...	--	--	--	--	--	--	--	--	--	--
SEP										
01...	--	--	--	--	--	--	--	--	--	--

## PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUL 1992										
01...	1145	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR- EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUL 1992									
01...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUL 1992									
01...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01

## RIO GUAYANILLA BASIN

50124200 RIO GUAYANILLA NEAR GUAYANILLA, PR

LOCATION.--Lat 18°02'40", long 66°47'53", Hydrologic Unit 21010004, on left bank, 0.7 mi (1.1 km) north of junction of Highways 2 and 132, 0.6 mi (1.0 km) downstream from Quebrada Consejo, 1.8 mi (2.9 km) north-northwest from Plaza de Guayanilla.

DRAINAGE AREA.--18.9 mi<sup>2</sup> (49.0 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 80 ft (24 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	33	19	14	5.4	4.8	e20	e6.6	23	30	10	6.3
2	29	30	18	14	5.4	5.0	e19	e7.0	25	27	6.1	6.1
3	23	25	18	12	5.2	4.4	e30	e6.0	21	30	7.3	5.3
4	22	24	21	11	5.2	4.2	e11	e5.6	19	21	5.9	4.9
5	22	24	19	69	5.4	4.5	e6.0	e5.4	17	20	50	12
6	25	70	17	408	5.4	4.9	e5.0	e9.0	16	17	80	21
7	33	36	17	53	e5.4	5.7	e4.0	e6.0	15	15	21	59
8	23	30	18	32	e5.9	5.4	e3.4	e5.0	16	16	14	44
9	21	28	19	21	e6.3	5.2	e5.0	e3.9	62	15	23	17
10	27	27	18	16	e6.3	e5.4	e6.6	e4.0	33	10	22	10
11	24	26	16	16	6.1	e6.4	e7.0	e4.0	35	8.4	15	7.8
12	21	25	15	22	6.5	e6.8	e4.5	e4.5	49	13	134	7.8
13	19	24	14	12	e6.8	e3.5	e4.8	10	43	7.3	111	5.8
14	20	28	15	9.8	e6.1	e3.3	e5.0	21	34	57	42	35
15	30	24	16	8.6	6.3	e3.3	e7.0	37	30	50	28	28
16	22	26	17	9.4	6.3	e3.2	e10	12	29	12	25	21
17	20	38	18	19	6.0	e3.2	e12	13	28	7.3	18	41
18	24	27	18	11	5.4	e3.4	e14	9.9	27	7.5	14	29
19	33	22	18	9.5	5.4	e3.8	e12	6.0	27	12	11	14
20	28	20	18	8.6	5.4	e3.8	e25	4.6	27	20	9.9	15
21	39	20	22	8.6	5.5	e4.0	e62	4.0	74	9.3	23	20
22	35	19	19	8.4	5.4	e4.3	e40	3.7	42	8.1	28	34
23	43	19	19	8.4	5.0	e3.6	e19	270	37	7.3	13	31
24	44	19	18	7.0	4.9	e3.4	e14	211	34	6.7	10	19
25	55	20	18	6.8	4.6	e3.6	e12	167	34	6.2	9.1	23
26	46	26	17	6.8	4.4	e3.6	e10	127	35	5.8	8.0	31
27	35	23	17	6.2	4.5	e5.0	e8.4	70	35	5.3	7.6	13
28	34	22	16	5.9	4.1	e9.0	e8.0	42	34	5.2	7.2	58
29	32	23	16	5.9	4.1	e15	e7.0	32	34	5.3	9.7	42
30	32	20	16	5.9	---	e13	e6.6	25	34	5.2	13	81
31	36	---	16	5.5	---	e10	---	21	---	6.3	7.6	---
TOTAL	919	798	543	851.3	158.7	164.7	398.3	1153.2	969	466.2	783.4	742.0
MEAN	29.6	26.6	17.5	27.5	5.47	5.31	13.3	37.2	32.3	15.0	25.3	24.7
MAX	55	70	22	408	6.8	15	62	270	74	57	134	81
MIN	19	19	14	5.5	4.1	3.2	3.4	3.7	15	5.2	5.9	4.9
AC-FT	1820	1580	1080	1690	315	327	790	2290	1920	925	1550	1470
CFSM	1.57	1.41	.93	1.45	.29	.28	.70	1.97	1.71	.80	1.34	1.31
IN.	1.81	1.57	1.07	1.68	.31	.32	.78	2.27	1.91	.92	1.54	1.46

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1992, BY WATER YEAR (WY)

	64.7	53.2	20.1	11.1	7.18	6.20	10.7	28.7	14.9	12.2	18.4	42.0
MEAN	64.7	53.2	20.1	11.1	7.18	6.20	10.7	28.7	14.9	12.2	18.4	42.0
MAX	167	110	41.9	27.5	11.4	13.2	26.6	80.4	41.0	25.9	48.5	102
(WY)	1986	1988	1988	1992	1985	1989	1983	1985	1987	1986	1988	1981
MIN	16.0	21.5	11.9	6.97	3.10	2.85	4.39	5.83	3.28	5.22	6.72	7.46
(WY)	1983	1989	1989	1991	1990	1981	1984	1988	1991	1990	1985	1983

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1981 - 1992

ANNUAL TOTAL	5487.6	7946.8	
ANNUAL MEAN	15.0	21.7	23.7
HIGHEST ANNUAL MEAN			33.1
LOWEST ANNUAL MEAN			16.3
HIGHEST DAILY MEAN	107	408	1500
LOWEST DAILY MEAN	2.0	3.2	.97
ANNUAL SEVEN-DAY MINIMUM	2.3	3.4	1.7
INSTANTANEOUS PEAK FLOW		2170	14700
INSTANTANEOUS PEAK STAGE		11.74	20.40
ANNUAL RUNOFF (AC-FT)	10880	15760	17150
ANNUAL RUNOFF (CFSM)	.80	1.15	1.25
ANNUAL RUNOFF (INCHES)	10.80	15.64	17.01
10 PERCENT EXCEEDS	31	37	51
50 PERCENT EXCEEDS	9.0	16	10
90 PERCENT EXCEEDS	3.0	4.9	3.8

## RIO GUAYANILLA BASIN

50124700 RIO GUAYANILLA AT CENTRAL RUFINA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'40", long 66°46'49", at dirt road bridge, 0.7 mi (1.1 km) from mouth, 0.9 mi (1.4 km) east of Central Rufina and 0.9 mi (1.4 km) southeast of Guayanilla.

DRAINAGE AREA.--22.8 mi<sup>2</sup> (59.1 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1960-65, 1974 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991											
30...	1145	12.6	450	7.3	29.5	430	5.5	72	71	42000	26000
JAN 1992											
02...	0950	0.90	784	7.7	26.0	2.5	2.4	35	20	K50	K80
FEB											
19...	0950	0.98	722	7.3	27.5	1.2	3.8	48	22	K10	K10
MAY											
20...	1135	1.8	668	7.2	30.5	2.5	6.2	82	24	410	350
JUL											
01...	1250	2.7	255	7.2	32.5	1.6	8.0	97	16	250	200
SEP											
02...	1300	2.1	704	7.7	31.0	1.3	7.1	92	13	260	260

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
30...	240	51	28	150	4	8.0	150	<0.5	49	28
JAN 1992										
02...	--	--	--	--	--	--	260	--	--	--
FEB										
19...	--	--	--	--	--	--	220	--	--	--
MAY										
20...	240	65	18	55	2	5.6	170	<0.5	71	54
JUL										
01...	--	--	--	--	--	--	180	--	--	--
SEP										
02...	230	64	19	39	1	5.3	170	--	34	53

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
30...	0.20	18	422	2.92	978	2.06	0.740	2.80	0.160	0.84
JAN 1992										
02...	--	--	--	--	3	0.070	0.770	0.840	8.70	0.80
FEB										
19...	--	--	--	--	7	2.10	1.10	3.20	2.80	0.70
MAY										
20...	<0.10	25	396	1.90	4	7.53	0.070	7.60	0.080	0.72
JUL										
01...	--	--	--	--	18	0.66	0.540	1.20	3.10	1.3
SEP										
02...	0.20	30	406	2.30	4	8.98	0.020	9.00	0.070	0.63

K = non-ideal count

## 50124700 RIO GUAYANILLA AT CENTRAL RUFINA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991 30...	1.0	3.8	17	0.890	3	200	60	<1	66	150
JAN 1992 02...	9.5	10	46	3.20	--	--	--	--	--	--
FEB 19...	3.5	6.7	30	2.70	--	--	--	--	--	--
MAY 20...	0.80	8.4	37	2.70	1	<100	150	<1	<1	20
JUL 01...	4.4	5.6	25	0.54	--	--	--	--	--	--
SEP 02...	0.70	9.7	43	2.50	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1991 30...	40000	17	1200	0.10	2	<1	90	<0.010	<1	0.03
JAN 1992 02...	--	--	--	--	--	--	--	--	--	--
FEB 19...	--	--	--	--	--	--	--	--	--	--
MAY 20...	150	1	210	<0.10	<1	<1	20	<0.010	<1	0.14
JUL 01...	--	--	--	--	--	--	--	--	--	--
SEP 02...	--	--	--	--	--	--	--	--	--	--

## PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUL 1992 01...	1250	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	0.03	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUL 1992 01...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUL 1992 01...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01

## RIO YAUCO BASIN

## 50125780 LAGO LUCCHETTI AT DAMSITE, PR

LOCATION.--Lat 18°05'37", long 66°51'54", Hydrologic Unit 21010004, at Antonio Lucchetti Dam on Río Yauco, 3.9 mi (6.3 km) north of Yauco.

DRAINAGE AREA.--17.4 mi<sup>2</sup> (45.1 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD.--December 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Lucchetti was completed in 1952. The dam is on Río Yauco and is a unit of the Southwestern Puerto Rico Project. It provides 16,500 acre-feet (20.3 hm<sup>3</sup>) of usable storage for power generation and irrigation. The dam is a concrete gravity structure with a total length of 591 ft (180 m), a maximum height of 178 ft (54 m), and a maximum width at the base of 150 ft (46 m). An ungated, overflow type spillway with a clear length of 171 ft (52 m) and a crest elevation of 570 ft (174 m), occupies the central portion of the dam. The spillway was designed for a maximum capacity of 62,800 ft<sup>3</sup>/s (1,778 m<sup>3</sup>/s) at a design head of 20 ft (6 m). The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 571.54 ft (174.21 m), Oct. 25, 1990 minimum elevation, 519.85 ft (158.45 m), Oct. 23, 1991 but may have been less during period of no gage-height record.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 566.85 ft (172.77 m), June 28; minimum elevation, 519.85 ft (158.45 m), Oct. 23, but may have been less during period of no gage-height record.

Capacity Table  
(based on data from Puerto Rico Water Resources Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
519	2,275	540	5,165
520	2,385	550	7,020
525	2,965	561	9,600
527	3,255	563	10,125
530	3,695	571	12,125
532	3,975	573	12,645

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	533.15	A	536.92	A	A	545.65	556.43	554.28	A	566.37	560.52	550.33
2	533.18	A	538.37	A	A	546.34	556.43	554.25	A	565.66	A	549.12
3	531.76	A	538.37	A	A	546.45	556.07	554.02	A	565.25	A	548.41
4	531.70	A	538.63	A	545.47	547.78	556.00	553.67	A	565.39	A	548.18
5	531.70	A	538.66	A	545.43	549.42	555.96	553.63	A	565.50	A	547.47
6	531.72	A	538.53	A	547.15	549.03	555.30	553.33	A	565.07	A	549.18
7	532.07	A	538.38	A	547.47	548.98	555.25	553.03	A	564.55	A	554.71
8	529.78	A	538.36	534.00	547.71	548.92	555.19	552.61	A	564.53	A	555.61
9	529.00	A	538.32	536.10	546.91	549.45	555.15	552.56	564.57	564.18	A	554.08
10	530.11	A	538.29	537.22	546.87	550.00	553.97	552.50	563.94	564.80	A	553.42
11	530.20	A	538.22	537.30	547.39	550.94	554.68	552.20	562.93	564.77	A	551.99
12	527.50	A	537.42	537.66	547.99	551.57	554.47	551.89	563.17	565.21	A	551.52
13	527.50	A	536.95	539.58	547.98	552.87	554.35	551.18	563.04	564.41	A	551.63
14	527.50	A	535.80	540.32	547.93	554.17	554.45	551.01	563.64	564.91	A	552.08
15	527.52	A	535.74	541.46	547.87	556.10	554.46	550.13	563.75	564.21	A	552.28
16	527.70	A	535.68	542.27	547.82	557.36	554.21	550.15	563.59	564.21	A	550.94
17	525.08	A	535.68	542.25	547.75	557.39	554.27	550.20	563.27	564.19	A	549.29
18	525.03	A	A	542.47	546.95	557.33	554.55	548.64	563.12	564.20	A	547.88
19	525.02	A	A	542.48	546.89	556.93	554.88	549.44	563.41	564.58	556.53	547.17
20	524.08	A	A	542.48	545.69	556.91	556.42	549.47	563.47	564.00	555.62	546.93
21	524.08	533.55	A	542.48	545.78	557.51	557.19	549.56	565.32	563.93	555.40	A
22	520.96	536.85	A	542.48	545.72	557.53	557.48	549.00	565.79	563.07	555.08	A
23	519.85	538.44	A	543.14	545.66	557.52	557.50	553.84	566.26	561.66	554.43	A
24	A	539.09	A	A	545.90	557.53	557.36	555.89	566.16	561.65	553.86	A
25	A	539.06	A	A	544.97	557.52	557.38	557.27	565.98	561.62	552.25	A
26	A	539.05	A	A	545.17	557.49	557.38	557.35	565.99	A	552.26	A
27	A	537.47	A	A	545.13	557.49	557.39	A	566.79	561.46	552.22	A
28	A	537.43	A	A	545.31	557.47	556.93	A	566.74	561.42	552.24	A
29	A	537.42	A	A	545.25	557.45	555.87	A	A	561.38	551.30	A
30	A	537.01	A	A	---	557.42	555.02	A	566.37	560.78	551.35	A
31	A	---	A	A	---	556.40	---	A	---	560.98	550.30	---
TOTAL	---	---	---	---	---	17164.92	16671.99	---	---	---	---	---
MEAN	---	---	---	---	---	553.71	555.73	---	---	---	---	---
MAX	---	---	---	---	---	557.53	557.50	---	---	---	---	---
MIN	---	---	---	---	---	545.65	553.97	---	---	---	---	---

A No gage-height record.



## RIO LOCO BASIN

411

50129700 RIO LOCO AT GUANICA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 17°58'33", long 66°54'52", 0.6 mi (1.0 km) northwest of Guánica and 1.2 mi (1.9 km) northeast of Ensenada.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1975 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991										
30...	1025	9700	7.5	30.5	6.4	1.8	24	140	210	230
DEC										
18...	1345	6900	7.7	25.5	2.6	3.1	39	120	K80	360
FEB 1992										
19...	0830	10000	7.2	25.5	2.2	1.9	21	190	K140	460
MAY										
20...	0925	17000	7.3	28.0	6.5	1.9	24	18	580	460
JUN										
26...	0845	9500	7.7	29.0	4.0	0.7	18	200	290	310
SEP										
02...	1120	44000	7.8	31.0	2.0	1.8	20	110	230	K145

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 1991										
30...	970	92	180	1400	20	50	250	<0.5	420	2600
DEC										
18...	--	--	--	--	--	--	190	--	--	--
FEB 1992										
19...	--	--	--	--	--	--	260	--	--	--
MAY										
20...	190	35	24	130	4	7.3	110	<0.5	46	220
JUN										
26...	--	--	--	--	--	--	255	--	--	--
SEP										
02...	1000	94	190	1500	20	57	220	--	460	2700

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (70301)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (00530)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00620)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)
OCT 1991										
30...	1.1	28	4920	30	--	<0.010	0.085	0.050	0.45	0.50
DEC										
18...	--	--	--	5	--	<0.010	0.057	0.030	0.27	0.30
FEB 1992										
19...	--	--	--	18	--	<0.010	0.082	0.090	0.31	0.40
MAY										
20...	<0.10	22	550	<1	0.076	0.010	0.086	0.040	0.26	0.30
JUN										
26...	--	--	--	28	0.087	0.010	0.097	0.060	0.84	0.90
SEP										
02...	0.80	27	5180	26	--	<0.010	0.098	0.050	0.25	0.30

K = non-ideal count

## RIO LOCO BASIN

50129700 RIO LOCO AT GUANICA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)
OCT 1991 30...	0.59	2.6	0.150	2	200	700	<1	5	60	1000
DEC 18...	0.36	1.6	0.060	--	--	--	--	--	--	--
FEB 1992 19...	0.48	2.1	0.150	--	--	--	--	--	--	--
MAY 20...	0.39	1.7	0.030	<1	<100	70	<1	3	10	520
JUN 26...	1.0	4.4	0.270	--	--	--	--	--	--	--
SEP 02...	0.40	1.8	0.100	--	--	--	--	--	--	--

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1991 30...	<1	140	<0.10	<1	<1	<10	<0.010	<1	0.32
DEC 18...	--	--	--	--	--	--	--	--	--
FEB 1992 19...	--	--	--	--	--	--	--	--	--
MAY 20...	<1	80	<0.10	<1	<1	<10	<0.010	<1	0.06
JUN 26...	--	--	--	--	--	--	--	--	--
SEP 02...	--	--	--	--	--	--	--	--	--

## PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1992 26...	0845	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OKY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1992 26...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1992 26...	<0.01	<0.10	<0.1	<1	<0.01	0.11	<0.01	<0.01	<0.01



## RIO GUANAJIBO BASIN

50131990 RIO GUANAJIBO AT HWY 119 AT SAN GERMAN, PR

LOCATION.--Lat 18°05'06", long 67°02'02", Hydrologic Unit 21010003, on right bank, at bridge on Hwy 119, 0.6 mi (1.0 km) southwest of junction of Highways 119 and 2, 0.22 mi (0.35 km) northeast of junction of Highways 119 and 102, 0.74 mi (1.19 km) east from public Plaza of San Germán.

DRAINAGE AREA.--34.6 mi<sup>2</sup> (89.6 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 148 ft (45.0 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	26	12	5.8	5.1	e3.6	6.7	e7.0	35	2.0	5.7	12
2	15	19	11	5.7	5.3	e4.2	6.8	e5.6	30	2.3	4.3	29
3	12	16	10	5.6	5.1	e3.7	10	e4.3	25	3.0	4.3	59
4	10	14	10	5.4	4.8	e3.7	4.4	e3.4	23	2.7	8.6	58
5	11	14	13	6.8	4.7	e3.6	3.7	e2.9	18	2.4	46	60
6	26	19	11	817	5.5	e3.3	4.2	e2.4	15	2.0	89	162
7	42	16	16	73	6.2	e3.3	9.1	e2.0	13	2.5	47	206
8	22	15	12	34	5.6	e3.1	4.7	e1.8	11	4.7	32	80
9	17	14	12	22	5.2	e3.0	4.9	e1.5	32	10	23	46
10	15	13	10	16	4.7	e2.9	4.4	e1.7	29	12	25	30
11	14	13	8.8	14	4.2	e3.0	3.4	e1.5	15	6.3	17	50
12	13	12	8.3	14	4.2	e3.0	3.2	e1.9	17	11	16	29
13	13	12	7.8	12	4.4	3.2	2.8	e2.4	13	22	21	44
14	12	13	7.9	11	4.3	3.4	2.6	e2.7	9.1	108	13	52
15	12	12	8.0	9.5	4.3	3.4	2.4	e2.3	6.9	93	15	44
16	11	14	6.9	9.0	4.2	3.1	10	e4.1	6.0	37	15	28
17	9.8	15	6.1	8.7	3.9	2.8	20	e7.6	5.5	14	8.2	29
18	8.7	27	6.0	8.3	3.7	2.8	7.7	e5.6	4.9	6.4	6.7	34
19	22	28	5.9	7.9	e3.6	2.7	12	e3.0	4.5	15	6.3	35
20	32	16	6.4	7.5	e3.5	2.9	74	e21	4.3	38	5.8	126
21	19	16	6.7	7.2	e3.5	4.3	41	e8.2	5.9	13	41	52
22	71	15	6.5	6.8	e3.7	4.3	e35	24	4.5	3.8	58	42
23	42	13	5.6	6.4	e3.6	2.8	e20	539	3.6	2.4	39	38
24	20	13	5.4	6.1	e3.5	2.3	e15	199	3.4	2.0	25	29
25	15	18	5.6	6.1	e3.7	2.3	e11	140	3.3	1.8	16	41
26	13	15	5.6	6.1	e3.8	2.4	e8.8	120	3.2	2.0	13	29
27	12	15	5.8	6.1	e3.7	2.5	e7.0	87	3.1	2.0	11	29
28	11	15	5.8	5.2	e3.6	2.6	e5.6	68	3.1	2.0	11	36
29	11	13	6.3	4.8	e3.6	5.6	e4.6	56	2.8	1.9	23	46
30	38	13	6.1	4.8	---	3.3	e4.6	48	2.3	2.3	21	57
31	42	---	6.0	4.8	---	12	---	41	---	7.3	16	---
TOTAL	632.5	474	254.5	1157.6	125.2	109.1	349.6	1414.9	352.4	434.8	682.9	1612
MEAN	20.4	15.8	8.21	37.3	4.32	3.52	11.7	45.6	11.7	14.0	22.0	53.7
MAX	71	28	16	817	6.2	12	74	539	35	108	89	206
MIN	8.7	12	5.4	4.8	3.5	2.3	2.4	1.5	2.3	1.8	4.3	12
MRD	15	15	6.9	7.2	4.2	3.1	6.7	5.6	6.4	3.8	16	43
AC-FT	1250	940	505	2300	248	216	693	2810	699	862	1350	3200
CFSM	.59	.46	.24	1.08	.12	.10	.34	1.32	.34	.41	.64	1.55
IN.	.68	.51	.27	1.24	.13	.12	.38	1.52	.38	.47	.73	1.73

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1992, BY WATER YEAR (WY)

	MEAN	20.4	15.8	8.21	37.3	4.32	3.52	11.7	39.2	8.38	14.2	21.8	33.3
MAX	20.4	15.8	8.21	37.3	4.32	3.52	11.7	45.6	11.7	14.5	22.0	53.7	
(WY)	1992	1992	1992	1992	1992	1992	1992	1992	1992	1991	1992	1992	
MIN	20.4	15.8	8.21	37.3	4.32	3.52	11.7	32.8	5.01	14.0	21.7	12.9	
(WY)	1992	1992	1992	1992	1992	1992	1992	1991	1991	1992	1991	1991	

## SUMMARY STATISTICS

## FOR 1992 WATER YEAR

## WATER YEARS 1991 - 1992

ANNUAL TOTAL	7599.5												
ANNUAL MEAN	20.8									20.8			
HIGHEST ANNUAL MEAN										20.8		1992	
LOWEST ANNUAL MEAN										20.8		1992	
HIGHEST DAILY MEAN	817	Jan	6							817	Jan	6	1992
LOWEST DAILY MEAN	1.5	May	9							1.5	May	9	1992
ANNUAL SEVEN-DAY MINIMUM	1.8	May	6							1.8	May	6	1992
INSTANTANEOUS PEAK FLOW	6610	Jan	6							6610	Jan	6	1992
INSTANTANEOUS PEAK STAGE	13.23	Jan	6							13.23	Jan	6	1992
ANNUAL RUNOFF (AC-FT)	15070									15040			
ANNUAL RUNOFF (CFSM)	.60									.60			
ANNUAL RUNOFF (INCHES)	8.17									8.15			
10 PERCENT EXCEEDS	42									40			
50 PERCENT EXCEEDS	8.8									10			
90 PERCENT EXCEEDS	2.8									3.2			

RIO GUANAJIBO BASIN

415

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°07'18", long 67°03'56", at bridge on Highway 347, 2.2 mi (3.5 km) northwest of San Germán.

DRAINAGE AREA.--45.5 mi<sup>2</sup> (117.8 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER QUALITY DATA, WATER YEARS OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991											
11...	1135	4.1	646	7.9	27.5	40	5.3	19	13	530	480
DEC 20...	0840	5.6	660	8.0	24.5	4.2	5.2	38	19	K140	2200
FEB 1992											
26...	1430	5.9	720	7.5	29.0	0.80	6.0	72	18	10	230
MAY 19...	1130	4.6	517	7.1	28.0	2.3	4.3	55	23	K180	390
JUN 26...	0800	8.0	665	7.7	24.5	0.70	3.1	44	13	430	210
AUG 13...	1030	8.7	556	7.4	27.0	2.0	3.0	41	<10	2000	280

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
OCT 1991										
11...	220	23	39	43	1	3.1	215	<0.5	64	47
DEC 20...	--	--	--	--	--	--	120	--	--	--
FEB 1992										
26...	--	--	--	--	--	--	230	--	--	--
MAY 19...	200	22	35	31	1	3.2	190	<0.5	31	42
JUN 26...	--	--	--	--	--	--	240	--	--	--
AUG 13...	210	22	37	27	0.8	2.6	190	--	37	35

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
11...	0.30	34	382	4.25	6	2.10	0.200	2.30	0.490	0.51
DEC 20...	--	--	--	--	1	2.54	0.160	2.70	0.340	0.46
FEB 1992										
26...	--	--	--	--	1	1.46	0.040	1.50	0.060	0.34
MAY 19...	<0.10	31	309	3.84	<1	1.47	0.130	1.60	0.150	0.45
JUN 26...	--	--	--	--	7	2.07	0.230	2.30	0.260	0.44
AUG 13...	0.10	32	302	7.09	1	1.33	0.270	1.60	1.00	0.50

K = non-ideal count

## RIO GUANAJIBO BASIN

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
11...	1.0	3.3	15	1.50	<1	100	650	<1	4	20
DEC 20...	0.80	3.5	15	1.40	--	--	--	--	--	--
FEB 1992										
26...	0.40	1.9	8.4	1.20	--	--	--	--	--	--
MAY 19...	0.60	2.2	9.7	0.770	1	<100	90	<1	2	30
JUN 26...	0.70	3.0	13	0.840	--	--	--	--	--	--
AUG 13...	1.5	3.1	14	0.670	--	--	--	--	--	--

[illegible]

RIO GUANAJIBO BASIN

417

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR

LOCATION.--Lat 18°09'36", long 67°05'08", Hydrologic Unit 21010003 at bridge on Highway 348, 0.5 mi (0.8 km) southwest of Rosario plaza.

DRAINAGE AREA.--18.3 mi<sup>2</sup> (47.4 km<sup>2</sup>).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 50.0 ft (15.2 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	36	11	12	9.3	7.5	27	6.5	27	6.8	17	24
2	34	23	11	10	8.7	7.9	19	6.3	18	7.4	13	71
3	27	20	11	9.0	8.8	8.1	11	5.2	14	13	12	81
4	23	19	12	8.8	9.1	8.2	7.5	4.8	12	7.8	113	198
5	21	21	11	9.7	9.2	8.7	6.1	4.5	10	7.5	94	107
6	42	20	11	163	11	7.9	5.4	4.4	9.5	7.1	148	158
7	68	18	10	27	14	7.7	5.6	4.1	8.9	7.0	69	135
8	117	17	10	16	11	9.5	6.7	4.2	9.8	7.5	167	122
9	65	16	9.8	13	9.1	7.3	8.6	3.9	28	13	189	109
10	36	16	9.7	12	8.7	7.5	11	4.1	35	13	169	84
11	28	16	10	13	9.3	7.4	8.1	4.1	18	14	89	145
12	25	15	9.4	14	8.7	7.3	6.8	4.4	13	10	77	100
13	23	15	9.3	12	8.4	7.3	6.6	4.7	11	79	76	281
14	26	15	9.0	11	8.4	7.0	5.5	4.6	10	129	51	199
15	28	15	8.7	11	8.7	6.9	35	5.5	10	91	54	128
16	21	15	8.8	11	8.3	6.9	46	9.7	9.8	50	37	91
17	19	15	9.5	12	8.2	7.1	27	8.4	9.7	28	31	71
18	20	15	9.7	11	8.1	8.6	11	5.4	9.5	15	27	58
19	27	14	9.9	11	7.9	7.7	9.8	47	9.2	105	24	79
20	32	13	10	11	7.6	7.3	43	33	8.5	93	23	225
21	32	13	13	11	7.7	7.3	45	10	8.7	28	23	136
22	26	12	9.7	11	7.6	7.2	27	15	8.7	18	25	187
23	21	16	9.7	11	7.5	6.4	12	275	8.0	15	22	136
24	19	15	9.7	e10	7.4	6.2	8.3	196	7.9	68	20	76
25	19	13	9.5	e10	7.3	6.5	6.6	85	7.8	31	37	71
26	18	13	9.3	e10	7.1	6.7	6.0	45	7.8	17	28	58
27	17	13	9.3	e10	7.0	8.3	5.8	26	7.5	13	19	47
28	31	12	9.2	e10	6.9	21	5.2	18	7.5	12	17	113
29	26	12	9.1	e10	7.0	15	4.9	18	7.7	11	30	81
30	27	11	9.1	9.5	---	16	6.0	30	7.1	30	73	502
31	53	---	9.1	9.4	---	60	---	40	---	23	41	---
TOTAL	1030	484	307.5	509.4	248.0	314.4	433.5	932.8	359.6	970.1	1815	3873
MEAN	33.2	16.1	9.92	16.4	8.55	10.1	14.4	30.1	12.0	31.3	58.5	129
MAX	117	36	13	163	14	60	46	275	35	129	189	502
MIN	17	11	8.7	8.8	6.9	6.2	4.9	3.9	7.1	6.8	12	24
AC-FT	2040	960	610	1010	492	624	860	1850	713	1920	3600	7680
CFSM	1.82	.88	.54	.90	.47	.55	.79	1.64	.66	1.71	3.20	7.05
IN.	2.09	.98	.63	1.04	.50	.64	.88	1.90	.73	1.97	3.69	7.87

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1992, BY WATER YEAR (WY)

	1986	1987	1988	1989	1990	1991	1992
MEAN	105	74.2	30.6	20.5	15.2	22.3	23.5
MAX	206	117	43.2	31.8	19.1	77.0	57.7
(WY)	1986	1990	1990	1987	1989	1986	1989
MIN	33.2	16.1	9.92	15.9	8.55	10.1	11.9
(WY)	1992	1992	1992	1991	1992	1992	1991

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1986 - 1992

ANNUAL TOTAL	9427.0	11277.3	48.1
ANNUAL MEAN	25.8	30.8	67.9
HIGHEST ANNUAL MEAN			30.8
LOWEST ANNUAL MEAN			1989
HIGHEST DAILY MEAN	362	502	1550
LOWEST DAILY MEAN	6.8	3.9	3.9
ANNUAL SEVEN-DAY MINIMUM	7.5	4.2	4.2
INSTANTANEOUS PEAK FLOW		5640	7480
INSTANTANEOUS PEAK STAGE		12.54	13.64
INSTANTANEOUS LOW FLOW		3.7	3.7
ANNUAL RUNOFF (AC-FT)	18700	22370	34830
ANNUAL RUNOFF (CFSM)	1.41	1.68	2.63
ANNUAL RUNOFF (INCHES)	19.16	22.92	35.70
10 PERCENT EXCEEDS	52	81	112
50 PERCENT EXCEEDS	16	12	26
90 PERCENT EXCEEDS	9.8	6.9	10

## RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS 1979 TO CURRENT YEAR.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: OCTOBER 1985 TO SEPTEMBER 1986

INSTRUMENTATION.--US D-49 SEDIMENT SAMPLER SINCE OCTOBER 1985. AUTOMATIC SEDIMENT SAMPLER SINCE 1986

REMARKS.--sediment samples were collected by a local observer once daily during low flow and more than once daily during high flow events for concentration and particle size analyses. Sediment samples are collected periodically by survey staff. Automatic sediment sampler set to collect samples above 200 cfs.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,150 mg/L October 7, 1985; Minimum daily mean, 1 mg/L January 28, 1990.

SEDIMENT LOADS: Maximum daily, 74,700 tons (67,800 tonnes) October 7, 1985; Minimum daily, 0.05 ton (0.04 Tonne) several days.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,540 mg/L September 30, 1992; Minimum daily mean, 2.0 mg/L several days.

SEDIMENT LOADS: Maximum daily, 24,300 tons (22,000 tonnes) September 30, 1992; Minimum daily 0.04 ton (0.08 tonne) few days.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, PER 100 ML	HARD-NESS TOTAL (MG/L AS CaCO3)
OCT 1991												
11...	0915	30	268	8.3	23.5	2.5	8.4	72	<10	4200	5000	130
DEC												
19...	1150	9.8	291	7.3	23.0	1.5	9.7	89	<10	310	K110	--
FEB 1992												
26...	1310	7.3	287	8.4	25.5	1.1	4.7	64	<10	70	60	--
MAR												
31...	1355	6.1	255	7.0	26.0	18	7.4	53	<10	K760	K410	110
JUN												
25...	1230	7.6	260	8.0	28.0	9.4	9.1	81	<10	580	430	--
AUG												
14...	0825	47	270	7.6	23.5	15	8.0	72	<10	460	660	120

DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 1991												
11...	22	18	7.0	0.3	1.8	130	<0.5	6.8	13	<0.10	29	176
DEC												
19...	--	--	--	--	--	52	--	--	--	--	--	--
FEB 1992												
26...	--	--	--	--	--	120	--	--	--	--	--	--
MAR												
31...	21	15	9.9	0.4	1.4	100	<0.5	11	13	<0.10	27	158
JUN												
25...	--	--	--	--	--	135	--	--	--	--	--	--
AUG												
14...	21	17	6.9	0.3	1.4	130	--	8.3	7.8	<0.10	28	162

K = non-ideal count



WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

## RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	59	124	22	36	81	9.5	11	5	.15
2	34	41	3.9	23	18	1.2	11	5	.14
3	27	15	1.1	20	8	.44	11	3	.09
4	23	10	.62	19	12	.61	12	3	.10
5	21	10	.57	21	18	1.5	11	5	.14
6	42	105	57	20	36	4.1	11	11	.33
7	68	208	53	18	8	.41	10	13	.37
8	117	304	236	17	5	.21	10	5	.15
9	65	32	7.5	16	4	.16	9.8	3	.08
10	36	8	.81	16	4	.19	9.7	3	.08
11	28	7	.52	16	5	.22	10	3	.08
12	25	4	.26	15	4	.18	9.4	3	.08
13	23	3	.16	15	4	.18	9.3	3	.09
14	26	17	2.3	15	6	.25	9.0	4	.10
15	28	31	3.4	15	5	.20	8.7	4	.10
16	21	3	.20	15	6	.23	8.8	4	.09
17	19	2	.10	15	6	.25	9.5	10	.27
18	20	5	.32	15	5	.19	9.7	13	.34
19	27	31	3.7	14	12	.45	9.9	7	.17
20	32	57	9.0	13	8	.29	10	28	.78
21	32	49	6.3	13	6	.20	13	15	.57
22	26	33	3.0	12	6	.20	9.7	4	.10
23	21	10	.57	16	14	.79	9.7	5	.13
24	19	5	.26	15	13	.56	9.7	5	.12
25	19	9	.46	13	12	.45	9.5	5	.13
26	18	11	.53	13	9	.31	9.3	4	.09
27	17	8	.35	13	7	.26	9.3	4	.10
28	31	48	11	12	7	.25	9.2	3	.08
29	26	51	4.0	12	7	.23	9.1	13	.32
30	27	41	8.4	11	5	.16	9.1	5	.12
31	53	92	21	---	---	---	9.1	4	.09
TOTAL	1030	---	458.33	484	---	24.17	307.5	---	5.58

RIO GUANAJIBO BASIN

421

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	12	19	.83	9.3	3	.08	7.5	5	.11
2	10	16	.48	8.7	4	.11	7.9	3	.06
3	9.0	7	.17	8.8	15	.37	8.1	4	.08
4	8.8	10	.24	9.1	8	.20	8.2	8	.20
5	9.7	10	.27	9.2	7	.17	8.7	10	.24
6	163	1290	1180	11	7	.22	7.9	5	.11
7	27	39	3.5	14	4	.19	7.7	4	.08
8	16	9	.41	11	4	.12	9.5	2	.06
9	13	5	.19	9.1	5	.12	7.3	3	.06
10	12	4	.14	8.7	6	.15	7.5	10	.21
11	13	6	.21	9.3	10	.25	7.4	6	.12
12	14	7	.27	8.7	9	.21	7.3	6	.12
13	12	8	.25	8.4	4	.11	7.3	6	.12
14	11	5	.16	8.4	4	.10	7.0	5	.09
15	11	10	.30	8.7	3	.08	6.9	6	.11
16	11	7	.22	8.3	2	.06	6.9	8	.15
17	12	4	.14	8.2	2	.04	7.1	4	.09
18	11	4	.11	8.1	2	.04	8.6	29	.66
19	11	3	.10	7.9	2	.05	7.7	42	.90
20	11	6	.18	7.6	3	.06	7.3	12	.24
21	11	5	.17	7.7	8	.18	7.3	4	.08
22	11	3	.09	7.6	5	.12	7.2	10	.19
23	11	3	.09	7.5	3	.08	6.4	10	.18
24	e10	3	e.08	7.4	9	.18	6.2	10	.18
25	e10	3	e.07	7.3	4	.09	6.5	6	.11
26	e10	2	e.06	7.1	3	.06	6.7	4	.07
27	e10	2	e.05	7.0	3	.05	8.3	6	.37
28	e10	3	e.07	6.9	5	.09	21	33	3.0
29	e10	3	e.08	7.0	5	.11	15	35	2.8
30	9.5	3	.08	---	---	---	16	24	1.6
31	9.4	11	.26	---	---	---	60	208	120
TOTAL	509.4	---	1189.27	248.0	---	3.69	314.4	---	132.39

e Estimated

## RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	27	200	18	6.5	17	.29	27	38	3.1
2	19	154	9.1	6.3	24	.39	18	24	1.2
3	11	88	2.6	5.2	23	.33	14	16	.60
4	7.5	157	3.2	4.8	19	.25	12	14	.44
5	6.1	88	1.5	4.5	16	.20	10	12	.32
6	5.4	40	.62	4.4	24	.28	9.5	10	.25
7	5.6	39	.59	4.1	16	.18	8.9	9	.21
8	6.7	30	.52	4.2	18	.19	9.8	21	.56
9	8.6	36	.85	3.9	18	.19	28	59	13
10	11	38	1.1	4.1	19	.21	35	71	12
11	8.1	26	.58	4.1	24	.27	18	26	1.3
12	6.8	20	.39	4.4	25	.31	13	45	1.5
13	6.6	21	.36	4.7	25	.32	11	47	1.4
14	5.5	19	.30	4.6	24	.29	10	75	2.1
15	35	108	40	5.5	24	.36	10	62	1.7
16	46	109	26	9.7	38	1.2	9.8	58	1.5
17	27	69	6.2	8.4	17	.44	9.7	61	1.6
18	11	79	2.4	5.4	8	.12	9.5	60	1.6
19	9.8	60	1.6	47	221	178	9.2	67	1.6
20	43	233	93	33	64	13	8.5	64	1.5
21	45	97	18	10	13	.34	8.7	63	1.5
22	27	59	4.7	15	21	1.9	8.7	30	.72
23	12	31	1.1	275	1380	1430	8.0	18	.40
24	8.3	20	.46	196	757	485	7.9	18	.38
25	6.6	29	.52	85	203	54	7.8	16	.34
26	6.0	21	.35	45	74	9.5	7.8	17	.35
27	5.8	25	.39	26	37	2.8	7.5	16	.34
28	5.2	29	.42	18	23	1.1	7.5	22	.46
29	4.9	33	.45	18	24	1.2	7.7	22	.46
30	6.0	21	.30	30	68	14	7.1	19	.37
31	---	---	---	40	74	13	---	---	---
TOTAL	433.5	---	235.60	932.8	---	2209.66	359.6	---	52.80

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	6.8	19	.35	17	63	3.3	24	63	4.2
2	7.4	18	.38	13	15	.50	71	377	233
3	13	55	1.8	12	24	.81	81	298	78
4	7.8	43	.93	113	985	1500	198	649	827
5	7.5	24	.50	94	283	116	107	201	75
6	7.1	22	.42	148	504	253	158	1260	1180
7	7.0	20	.37	69	149	32	135	347	154
8	7.5	21	.44	167	993	1760	122	392	283
9	13	34	1.4	189	719	428	109	242	85
10	13	86	3.1	169	469	270	84	183	80
11	14	74	2.9	89	202	57	145	818	614
12	10	62	1.8	77	184	49	100	118	39
13	79	493	420	76	168	47	283	1920	5820
14	129	763	834	51	62	9.6	199	974	584
15	91	303	125	54	81	13	128	263	102
16	50	174	47	37	31	3.1	91	199	50
17	28	127	10	31	26	2.1	71	51	10
18	15	105	4.2	27	29	2.1	58	30	4.9
19	105	556	463	24	24	1.6	79	207	73
20	93	281	109	23	18	1.1	225	725	844
21	28	46	3.8	23	24	1.6	136	453	191
22	18	23	1.1	25	31	2.1	187	912	1290
23	15	18	.69	22	25	1.5	136	240	110
24	68	219	103	20	23	1.2	76	19	3.9
25	31	52	5.8	37	103	29	71	104	24
26	17	21	.96	28	133	10	58	65	12
27	13	36	1.3	19	61	3.2	47	12	1.5
28	12	24	.79	17	24	1.1	113	357	347
29	11	17	.52	30	135	21	81	184	49
30	30	68	18	73	248	91	506	3540	24300
31	23	97	5.5	41	123	14	---	---	---
TOTAL	970.1	---	2168.05	1815	---	4724.91	3879	---	37468.5
YEAR	11283.3		48672.95						

## RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
JAN 1992							
06...	0410	605	5600	9150	36	49	58
APR							
02...	1934	33	2020	180	46	58	64
MAY							
23...	1115	552	4170	6200	41	46	62
JUL							
14...	2055	520	4000	5620	38	48	59
AUG							
04...	1708	855	20300	46900	28	41	56
04...	1710	859	19600	45400	29	41	55
08...	1703	57	15300	2360	16	30	36
SEP							
30...	1826	1085	23900	70000	6	8	10

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
JAN 1992							
06...	69	79	94	98	99	99.6	100
APR							
02...	78	80	96	97	99	99.6	100
MAY							
23...	72	79	95	99	100	100	100
JUL							
14...	69	79	97	99	100	100	100
AUG							
04...	70	83	95	99	99.8	100	100
04...	68	77	92	98	99	99.7	100
08...	46	62	77	94	98	99	99
SEP							
30...	12	14	19	22	26	31	45

## RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS , PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
08...	1731	238	233	149	93
NOV					
01...	1825	28	41.6	3.1	100
DEC					
20...	1920	11	43.7	1.3	100
JAN 1992					
06...	0440	504	4670	6350	95
MAR					
28...	1540	12	123	14	86
APR					
16...	1908	98	302	80	97
20...	1955	234	2440	1540	99
MAY					
23...	0945	475	3580	4590	95
23...	1430	393	2000	2120	98
JUL					
14...	1956	525	6980	9890	97
14...	2010	512	6750	9330	98
30...	1907	138	430	160	97
AUG					
04...	1725	681	12200	22400	93
04...	1740	563	12100	18400	88
08...	1710	1140	15300	47000	78
10...	1846	364	1110	1090	88
SEP					
02...	1848	395	3180	3390	80
04...	1500	475	10100	12900	79
20...	1602	755	7180	14650	67
27...	1816	45	6250	759	48
30...	1834	1020	9070	24900	49

## RIO GUANAJIBO BASIN

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR

LOCATION.--Lat 18°08'36", long 67°08'57", Hydrologic Unit 21010003, at bridge on Highway 100, 1.4 mi (2.3 km) west of Hormigueros, and 2.0 mi (3.2 km) downstream from Río Rosario.

DRAINAGE AREA.--120 mi<sup>2</sup> (311 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Annual low-flow measurements 1959, monthly measurements April 1959 to November 1967, January 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Previous to Nov. 7, 1980, at site 0.3 mi (0.5 km) upstream at datum 7.36 ft (2.243 m) higher.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station. Daily discharges affected by sewage treatment plant about 2.1 mi (3.4 km) upstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	164	97	22	14	20	20	119	29	196	16	60	52
2	102	73	19	18	20	19	44	23	156	15	45	56
3	87	64	17	10	22	23	69	18	105	26	41	150
4	80	61	19	11	22	20	30	14	89	19	93	450
5	73	60	17	12	24	20	18	12	74	17	118	514
6	73	71	24	939	25	20	13	9.9	63	15	192	588
7	165	64	29	555	36	18	28	8.2	57	14	127	888
8	170	57	22	210	32	18	42	7.5	52	26	140	576
9	146	51	19	162	27	17	28	6.3	85	60	247	448
10	92	48	19	130	23	16	43	7.0	145	69	204	299
11	78	45	15	110	29	17	25	6.2	99	41	134	425
12	69	43	13	97	31	15	17	8.0	73	37	126	326
13	63	41	12	82	26	14	14	9.7	64	83	186	493
14	60	32	13	69	26	14	11	11	52	267	107	877
15	69	32	11	62	24	14	9.1	9.5	45	448	104	604
16	61	27	9.8	58	23	14	65	18	40	119	86	399
17	53	38	8.8	55	21	14	111	32	35	97	68	327
18	49	31	7.5	52	21	16	52	23	32	62	61	274
19	62	50	13	47	20	17	49	12	29	78	54	252
20	135	32	15	43	19	15	139	87	26	248	49	598
21	139	32	19	39	19	15	313	34	26	101	51	646
22	174	25	16	36	20	22	202	109	24	71	100	409
23	191	26	14	33	20	15	85	1550	20	84	64	407
24	103	36	12	30	19	10	61	2170	16	90	54	276
25	84	27	14	28	20	11	46	950	17	88	49	648
26	73	29	12	30	21	13	36	654	18	52	67	532
27	66	23	12	27	20	12	28	423	17	42	45	283
28	66	23	12	24	20	35	23	284	17	39	40	327
29	80	22	14	23	19	20	19	219	16	35	49	337
30	61	21	13	21	---	50	19	185	17	37	102	497
31	136	---	13	19	---	13	---	180	---	67	99	---
TOTAL	3024	1281	476.1	3046	669	557	1758.1	7109.3	1705	2463	2962	12958
MEAN	97.5	42.7	15.4	98.3	23.1	18.0	58.6	229	56.8	79.5	95.5	432
MAX	191	97	29	939	36	50	313	2170	196	448	247	888
MIN	49	21	7.5	10	19	10	9.1	6.2	16	14	40	52
AC-FT	6000	2540	944	6040	1330	1100	3490	14100	3380	4890	5880	25700
CFSM	.81	.36	.13	.82	.19	.15	.49	1.91	.47	.66	.80	3.60
IN.	.94	.40	.15	.94	.21	.17	.55	2.20	.53	.76	.92	4.02

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1992, BY WATER YEAR (WY)

	MEAN	489	442	130	56.8	44.8	45.0	71.0	182	111	107	233	507
MAX	1254	1518	422	108	95.9	244	316	636	504	240	757	2075	
(WY)	1986	1978	1976	1982	1974	1989	1989	1980	1979	1984	1988	1975	
MIN	97.5	42.7	15.4	13.8	13.9	10.6	16.1	12.7	9.23	26.4	42.3	95.4	
(WY)	1992	1992	1992	1973	1977	1977	1977	1977	1977	1976	1976	1991	

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1973 - 1992

ANNUAL TOTAL	23702.1	38008.5	
ANNUAL MEAN	64.9	104	204
HIGHEST ANNUAL MEAN			402
LOWEST ANNUAL MEAN			104
HIGHEST DAILY MEAN	572	May 8	35000
LOWEST DAILY MEAN	7.5	Dec 18	5.0
ANNUAL SEVEN-DAY MINIMUM	11	Dec 12	5.5
INSTANTANEOUS PEAK FLOW			128000
INSTANTANEOUS PEAK STAGE			28.50
INSTANTANEOUS LOW FLOW			4.6
ANNUAL RUNOFF (AC-FT)	47010	75390	148000
ANNUAL RUNOFF (CFSM)	.54	.87	1.70
ANNUAL RUNOFF (INCHES)	7.35	11.78	23.14
10 PERCENT EXCEEDS	130	269	450
50 PERCENT EXCEEDS	47	39	76
90 PERCENT EXCEEDS	18	13	20



RIO GUANAJIBO BASIN

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50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1991											
10...	1015	97	350	7.8	25.0	15	6.9	83	17	K640	K880
DEC 19...	0925	16	446	7.0	22.5	5.0	6.4	70	15	K850	420
FEB 1992											
26...	1015	24	484	7.6	24.0	1.7	6.5	78	14	K170	440
MAR 31...	1125	15	410	7.4	25.0	5.9	6.5	80	11	500	380
JUN 25...	1100	24	470	7.4	25.5	3.3	7.0	91	11	520	300
AUG 14...	1010	145	343	7.4	26.0	17	5.7	74	<10	2200	K900

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT 1991										
10...	170	26	25	13	0.4	1.8	170	<0.5	13	16
DEC 19...	--	--	--	--	--	--	100	--	--	--
FEB 1992										
26...	--	--	--	--	--	--	200	--	--	--
MAR 31...	170	24	27	20	0.7	2.4	160	<0.5	27	27
JUN 25...	--	--	--	--	--	--	220	--	--	--
AUG 14...	150	25	22	11	0.4	2.2	150	--	15	14

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
10...	<0.10	29	226	59.2	<1	--	<0.010	0.590	0.020	0.18
DEC 19...	--	--	--	--	2	--	<0.010	0.610	0.010	--
FEB 1992										
26...	--	--	--	--	1	--	<0.010	0.120	0.020	0.18
MAR 31...	<0.10	30	253	10.4	15	0.310	0.010	0.320	0.020	0.18
JUN 25...	--	--	--	--	8	0.710	0.010	0.720	0.030	0.17
AUG 14...	0.10	26	200	78.3	40	0.520	0.020	0.540	0.040	0.36

K = non-ideal count

## RIO GUANAJIBO BASIN

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1991										
10...	0.20	0.79	3.5	0.180	<1	<100	60	1	10	10
DEC										
19...	<0.20	--	--	0.390	--	--	--	--	--	--
FEB 1992										
26...	0.20	0.32	1.4	0.320	--	--	--	--	--	--
MAR										
31...	0.20	0.52	2.3	0.280	<1	<100	40	<1	3	<10
JUN										
25...	0.20	0.92	4.1	0.340	--	--	--	--	--	--
AUG										
14...	0.40	0.94	4.2	0.270	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1991										
10...	1200	3	70	<0.10	<1	<1	<10	<0.010	<1	0.02
DEC										
19...	--	--	--	--	--	--	--	--	--	--
FEB 1992										
26...	--	--	--	--	--	--	--	--	--	--
MAR										
31...	540	6	70	<0.10	<1	<1	20	<0.010	1	0.02
JUN										
25...	--	--	--	--	--	--	--	--	--	--
AUG										
14...	--	--	--	--	--	--	--	--	--	--

## PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1992										
25...	1100	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1992									
25...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1992									
25...	<0.01	<0.10	<0.1	<1	<0.01	0.06	<0.01	<0.01	<0.01



RIO YAGÜEZ BASIN  
50138800 RIO YAGÜEZ NEAR MAYAGÜEZ, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°12'31", long 67°07'07", at steel-truss bridge on unnumbered paved road about 800 ft (244 m) south of Highway 106, 1.8 mi (2.9 km) west of Highways 106 and 352 junction, and 1.4 mi (2.3 km) east-northeast from Mayagüez plaza.

DRAINAGE AREA.--6.7 mi<sup>2</sup> (17.3 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)
OCT 1991												
10...	1350	4.1	294	8.0	26.0	2.0	7.6	93	<10	350	690	120
DEC 19...	1430	1.3	227	7.4	25.5	0.60	6.8	82	<10	240	280	--
FEB 1992												
26...	1130	1.2	322	7.8	23.0	0.50	8.8	106	<10	220	360	--
MAY 19...	0910	1.6	314	8.2	25.5	2.0	6.9	80	<10	280	340	140
JUN 24...	1300	2.2	300	7.8	26.0	1.5	6.8	79	<10	210	200	--
AUG 13...	1240	4.4	273	7.1	24.5	1.3	7.7	98	<10	290	K190	120

DATE	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 1991												
10...	33	10	11	0.4	2.7	130	<0.5	14	15	<0.10	30	194
DEC 19...	--	--	--	--	--	120	--	--	--	--	--	--
FEB 1992												
26...	--	--	--	--	--	140	--	--	--	--	--	--
MAY 19...	35	9.5	14	0.5	2.5	110	<0.5	9.9	12	<0.10	30	196
JUN 24...	--	--	--	--	--	200	--	--	--	--	--	--
AUG 13...	33	9.1	10	0.4	2.0	110	--	7.8	9.0	<0.10	29	171

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1991												
10...	2.15	<1	<0.010	0.670	<0.010	<0.20	0.040	<1	100	50	<1	<1
DEC 19...	--	4	<0.010	0.480	<0.010	<0.20	0.050	--	--	--	--	--
FEB 1992												
26...	--	1	<0.010	0.320	0.020	<0.20	0.040	--	--	--	--	--
MAY 19...	0.85	2	<0.010	0.260	<0.010	<0.20	0.050	<1	<100	40	<1	<1
JUN 28...	--	3	<0.010	0.360	<0.010	<0.20	0.040	--	--	--	--	--
AUG 13...	20.3	11	<0.010	0.820	0.030	<0.20	0.030	--	--	--	--	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

## RIO GRANDE DE ANASCO BASIN

50141500 LAGO GUAYO NEAR CASTANER, PR

LOCATION---Lat 18°12'46", long 66°50'06", Hydrologic Unit 21010003, at Guayo Dam on Río Guayo, 1.1 mi (1.8 km) southwest of Lago Yahuecas, 2.6 mi (4.2 km) southwest of Lago Prieto, 2.1 mi (3.4 km) north of Castañer, and 6.0 mi (9.6 km) west of Adjuntas.

DRAINAGE AREA---9.60 mi<sup>2</sup> (24.86 km<sup>2</sup>).

## ELEVATION RECORDS

PERIOD OF RECORD---April 1980 to January 1985, June 1989 to current year.

GAGE---Water-stage recorder. Datum of gage is mean sea level.

REMARKS---Lago Guayo was completed in 1956. The dam is on Río Guayo and is the largest in the southwestern Puerto Rico project. The maximum storage is 17,400 ac-ft (21.5 km<sup>3</sup>) for power and irrigation. The dam is a concrete gravity structure with a total length of 555 ft (169 m), a maximum structural height of 190 ft (58 m), and a maximum width at the base of 145 ft (44 m). The ungated overflow spillway with a crest elevation of 60.00 ft (18.29 m) and a crest length of 220 ft (67 m) was designed to pass a maximum flood of 30,200 ft<sup>3</sup>/s (855 m<sup>3</sup>/s) at a reservoir elevation of 70.00 ft (21.34 m). Timber flashboards that were added to increase storage capacity were subsequently removed and their use discontinued. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD---Maximum elevation, 1462.43 ft (445.75 m), May 27, 1980; minimum elevation recorded, 1415.43 ft (431.42 m), June 2, 1990, but may have been less during period of no gage-height record June 2-5, 1990.

EXTREMES OBSERVED FOR CURRENT YEAR---Maximum elevation, 1455.96 ft (443.78 m), May. 27; minimum elevation recorded 1434.06 ft (437.10 m), Aug. 24.

Capacity Table  
(based on data from Puerto Rico Water Resources Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
1415	3,960	1460	13,550
1449	10,660	1465	15,000

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1436.28	A	1444.84	1445.05	1449.25	1448.07	A	A	1453.26	A	A	1437.97
2	1436.82	A	1443.34	1444.92	1449.47	1447.97	A	A	1453.00	A	A	1438.25
3	1437.04	A	1443.52	1444.98	1449.62	1447.96	A	A	A	A	A	1438.52
4	1436.81	A	1443.50	1445.11	1449.78	1447.92	A	A	A	A	A	1439.04
5	1437.12	A	1443.60	1446.38	1449.95	1444.30	A	A	A	A	A	1439.47
6	1438.33	A	1443.65	A	1449.00	1443.28	A	1437.00	A	A	A	1440.83
7	1439.19	A	1443.71	A	1449.13	1443.40	A	1437.12	A	A	A	1441.68
8	1440.49	A	1443.56	A	1449.29	1444.69	A	1437.10	A	A	A	1442.26
9	1440.91	A	1443.67	1452.50	1449.43	1444.69	A	1436.86	A	A	A	1442.63
10	1440.92	A	A	1452.31	1449.61	1443.92	A	1437.00	A	A	A	1442.90
11	1441.30	A	A	1452.48	1448.84	1443.35	A	1437.03	A	A	A	1443.14
12	1441.63	A	A	1452.59	1447.87	1442.22	A	1437.03	A	A	A	1443.34
13	1441.94	A	A	1451.77	1448.00	1440.62	A	1436.91	A	A	A	1443.94
14	1442.51	1445.60	A	1451.54	1448.20	A	A	1436.95	A	A	A	1444.31
15	1442.91	1445.97	A	1450.99	1448.36	A	A	1437.33	A	A	A	1444.52
16	1443.26	1446.17	A	A	1448.54	A	A	1437.85	A	A	A	1444.76
17	1443.51	1446.41	A	A	1448.70	A	A	1440.10	A	A	A	1444.97
18	1443.93	1446.69	A	A	1448.87	A	A	A	A	A	A	1446.73
19	1444.47	1446.87	A	A	1448.98	A	A	A	A	A	1437.50	1447.54
20	1444.89	1446.75	A	A	1449.11	A	A	A	A	A	1436.89	1448.41
21	1444.97	1446.00	A	A	1449.17	A	A	A	A	A	1435.55	1449.02
22	1444.98	1445.42	A	A	1449.30	A	A	A	A	A	1434.60	1449.52
23	1446.23	1444.38	A	A	1449.50	A	A	A	A	A	1434.24	1449.95
24	1445.96	1443.71	A	1450.30	1449.34	A	A	A	A	A	1434.29	1450.23
25	1445.27	1443.94	A	1450.59	1449.52	A	A	1454.69	A	A	1434.88	1450.55
26	1445.63	1444.15	1446.37	1450.75	1449.48	A	A	1455.50	A	A	1435.38	1450.86
27	1445.88	1444.36	1446.36	1450.94	1448.91	A	A	1455.27	A	A	1435.84	1451.05
28	1445.89	1444.58	1446.32	1451.15	1448.15	A	A	1455.08	A	A	1436.21	1452.32
29	1446.34	1444.79	1446.22	1450.27	1448.27	A	A	1454.97	A	A	1436.59	1452.78
30	1446.16	1444.68	1446.20	1449.48	---	A	A	1454.43	A	A	1437.11	1454.54
31	1446.18	---	1446.02	1449.20	---	A	A	1453.93	---	A	1437.55	---
MEAN	1442.51	---	---	---	1449.02	---	---	---	---	---	---	1445.53
MAX	1446.34	---	---	---	1449.95	---	---	---	---	---	---	1454.54
MIN	1436.28	---	---	---	1447.87	---	---	---	---	---	---	1437.97

A No gage-height record

RIO GRANDE DE AÑASCO BASIN  
50143000 RIO GRANDE DE AÑASCO NEAR LARES, PR

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WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'26", long 66°55'00", at bridge on Highway 124, 0.7 mi (1.1 km) downstream from confluence of Río Blanco and Río Prieto, and 3.7 mi (6.0 km) southwest of Lares plaza.

DRAINAGE AREA.--26.3 mi<sup>2</sup> (68.1 km<sup>2</sup>) this does not include 36.2 mi<sup>2</sup> (93.8 km<sup>2</sup>) which contributes only during high floods, and 3.5 mi<sup>2</sup> (9.1 km<sup>2</sup>) which contributes only part of its storm runoff.

PERIOD OF RECORD.--Water years 1959-68, 1970 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1991										
22...	1145	153	220	7.7	26.0	54	8.2	14	200000	5700
JAN 1992										
10...	1430	23	322	8.0	25.5	2.7	7.4	<10	280	340
FEB										
18...	1500	13	298	8.4	27.0	1.5	9.4	<10	410	470
APR										
07...	0930	16	318	7.8	24.5	3.5	10.0	<10	K27	58
JUL										
02...	0835	18	304	7.6	26.0	0.90	7.0	<10	K45	K91
SEP										
03...	0845	31	286	7.2	24.0	13	7.0	<10	1400	230

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 1991										
22...	85	23	6.8	9.0	0.4	2.3	72	<0.5	22	11
JAN 1992										
10...	--	--	--	--	--	--	110	--	--	--
FEB										
18...	--	--	--	--	--	--	120	--	--	--
APR										
07...	130	35	9.6	14	0.5	2.3	120	<0.5	27	17
JUL										
02...	--	--	--	--	--	--	130	--	--	--
SEP										
03...	120	33	8.9	12	0.5	2.4	100	--	24	13

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 1991										
22...	0.10	28	145	60.1	32	1.57	0.030	1.60	0.060	0.44
JAN 1992										
10...	--	--	--	--	4	1.28	0.020	1.30	0.020	--
FEB										
18...	--	--	--	--	4	--	<0.010	0.480	0.030	--
APR										
07...	0.20	31	208	8.99	14	0.540	0.020	0.560	0.060	0.14
JUL										
02...	--	--	--	--	32	0.790	0.010	0.800	0.020	1.3
SEP										
03...	0.10	29	187	10.6	<1	--	<0.010	1.10	0.020	0.18

K = non-ideal count

## RIO GRANDE DE AÑASCO BASIN

50143000 RIO GRANDE DE AÑASCO NEAR LARES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 22...	0.50	2.1	9.3	0.100	2	<100	50	<1	1	10
JAN 10...	<0.20	--	--	0.050	--	--	--	--	--	--
FEB 18...	<0.20	--	--	0.050	--	--	--	--	--	--
APR 07...	0.20	0.76	3.4	0.020	<1	<100	10	<1	1	10
JUL 02...	1.3	2.1	6.3	0.050	--	--	--	--	--	--
SEP 03...	0.20	1.3	5.8	0.050	--	--	--	--	--	--

[illegible]



SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1963 - 1992	
ANNUAL TOTAL	94938		92717			
ANNUAL MEAN	260		253		308	
HIGHEST ANNUAL MEAN					460	1979
LOWEST ANNUAL MEAN					189	1967
HIGHEST DAILY MEAN	2690	Aug 5	4510	Sep 30	19400	Sep 16 1975
LOWEST DAILY MEAN	58	Apr 23	41	Mar 24	32	Apr 18 1965
ANNUAL SEVEN-DAY MINIMUM	66	Apr 18	45	Mar 20	35	Apr 14 1965
INSTANTANEOUS PEAK FLOW			21400	Sep 30	140000	Sep 16 1975
INSTANTANEOUS PEAK STAGE			13.35	Sep 30	33.90	Sep 16 1975
INSTANTANEOUS LOW FLOW			40	Mar 24	31	Apr 19 1965
ANNUAL RUNOFF (AC-FT)	188300		183900		223300	
ANNUAL RUNOFF (CFSM)	2.76		2.69		3.27	

## RIO GRANDE DE AÑASCO BASIN

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR--Continued  
(National stream-quality accounting network station)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year

## WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCHI, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)
OCT 1991 31...	0950	351	175	7.4	22.0	780	8.4	92	33000	30000	74
JAN 1992 29...	1035	73	260	8.2	25.0	3.5	8.8	95	K680	440	110
APR 23...	1020	107	245	7.6	25.0	65	10.0	119	5400	5700	72
JUL 15...	1005	420	230	7.5	25.0	190	7.2	88	4100	3000	81
DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
OCT 1991 31...	--	19	6.4	6.7	0.3	2.1	70	9.1	6.1	<0.10	22
JAN 1992 29...	--	29	9.7	10	0.4	1.5	110	11	9.5	0.20	30
APR 23...	--	20	5.4	8.2	0.4	2.1	110	7.8	11	0.20	18
JUL 15...	--	20	7.5	6.2	0.3	1.8	--	10	6.6	<0.10	21
DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT 1991 31...	127	120	114	1.30	0.050	0.06	1.3	0.470	0.040	0.030	0.09
JAN 1992 29...	151	169	33	0.330	0.010	0.01	<0.20	0.040	0.040	0.030	0.09
APR 23...	108	143	41	0.890	0.060	0.08	0.50	0.140	0.060	0.050	0.15
JUL 15...	124	121	137	0.940	0.060	0.08	1.0	0.270	<0.010	0.030	0.09
DATE	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT 1991 31...	100	--	30	--	--	--	<3	--	100	--	<4
JAN 1992 29...	<10	--	32	--	--	--	<2	--	12	--	<4
APR 23...	80	--	32	--	--	--	<3	--	87	--	<4
JUL 15...	90	--	28	--	--	--	<3	--	150	--	<4

RIO GRANDE DE AÑASCO BASIN

437

50144000 RIO GRANDE DE AÑASCO NR SAN SEBASTIAN, P.R.  
(National stream-quality accounting network station)

WATER-QUALITY DATA

DATE	MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)
OCT 1991											
31...	3	--	<10	2	1	<1.0	98	<6	--	--	--
JAN 1992											
29...	13	--	20	<1	<1	<1.0	140	<6	--	--	--
APR											
23...	14	--	<10	3	<1	<1.0	110	<6	--	--	--
JUL											
15...	13	--	<10	6	<1	<1.0	94	<6	--	--	--

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1991					
31...	0950	351	1150	1089	99
JAN 1992					
29...	1035	73	37.8	7.5	95
APR					
23...	1020	107	43	12.4	88
JUL					
15...	1005	420	369	418	47

## RIO GRANDE DE AÑASCO BASIN

50146000 RIO GRANDE DE AÑASCO NEAR AÑASCO, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°16'00", long 67°08'05", at bridge on Highway 430, 0.2 mi (0.3 km) south of Highway 109 at El Espino and 1.4 mi (2.3 km) east-southeast from Añasco plaza.

DRAINAGE AREA.--139 mi<sup>2</sup> (360 km<sup>2</sup>) this does not include 39.7 mi<sup>2</sup> (102.8 km<sup>2</sup>), flow is diverted to south coast.

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML)
NOV 1991											
08...	0715	235	252	7.8	24.5	9.1	7.4	82	<10	400	530
DEC 18...	0800	129	258	7.8	23.5	6.0	7.0	74	11	270	K180
FEB 1992											
19...	0855	74	268	7.5	23.5	2.5	7.2	79	<10	230	K150
APR 08...	0905	69	258	7.0	24.5	20	7.3	86	10	K740	270
JUL 07...	0845	110	230	6.9	28.0	8.0	6.6	54	<10	K130	480
SEP 02...	0930	350	150	6.8	25.0	250	5.4	61	29	37000	58000

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV 1991										
08...	110	28	9.4	11	0.5	1.7	100	<0.5	12	10
DEC 18...	--	--	--	--	--	--	100	--	--	--
FEB 1992										
19...	--	--	--	--	--	--	100	--	--	--
APR 08...	110	28	9.3	10	0.4	2.4	100	<0.5	17	15
JUL 07...	--	--	--	--	--	--	95	--	--	--
SEP 02...	63	17	4.9	6.4	0.4	2.8	70	--	8.5	6.2

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
NOV 1991										
08...	<0.10	32	164	104	167	--	<0.010	0.790	0.020	--
DEC 18...	--	--	--	--	2	0.510	0.010	0.520	0.020	--
FEB 1992										
19...	--	--	--	--	11	--	<0.010	0.140	0.020	--
APR 08...	0.20	31	173	32.3	50	0.470	0.030	0.500	0.080	--
JUL 07...	--	--	--	--	28	0.380	0.010	0.390	0.040	--
SEP 02...	<0.10	18	99	93.5	540	0.890	0.060	0.950	0.100	0.40

K = non-ideal count

50146000 RIO GRANDE DE AÑASCO NEAR AÑASCO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
NOV 1991 08...	<0.20	--	--	0.040	1	<100	40	<1	<1	60
DEC 18...	<0.20	--	--	0.050	--	--	--	--	--	--
FEB 1992 19...	<0.20	--	--	0.040	--	--	--	--	--	--
APR 08...	<0.20	--	--	0.020	<1	<100	20	<1	<1	<10
JUL 07...	<0.20	--	--	0.030	--	--	--	--	--	--
SEP 02...	0.50	1.5	6.4	0.100	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
NOV 1991 08...	650	3	70	<0.10	<1	<1	20	<0.010	<1	0.02
DEC 18...	--	--	--	--	--	--	--	--	--	--
FEB 1992 19...	--	--	--	--	--	--	--	--	--	--
APR 08...	1500	<1	170	<0.10	<1	<1	10	<0.010	3	0.02
JUL 07...	--	--	--	--	--	--	--	--	--	--
SEP 02...	--	--	--	--	--	--	--	--	--	--

## PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUL 1992 07...	0845	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUL 1992 07...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUL 1992 07...	<0.01	<0.10	<0.1	<1	<0.01	0.09	<0.01	<0.01	<0.01

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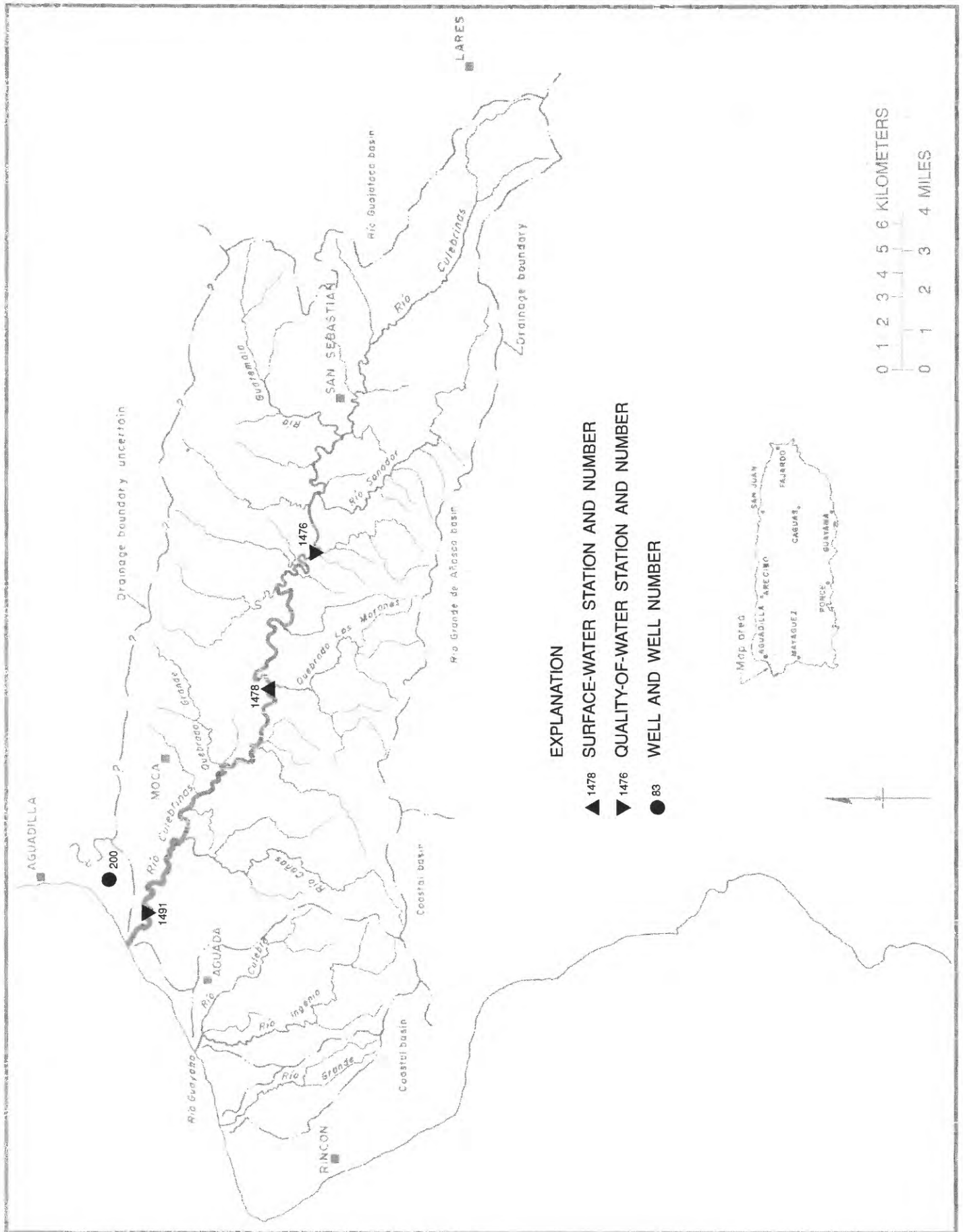


Figure 27.-Río Culebrinas basin.

## RIO CULEBRINAS BASIN

50147600 RIO CULEBRINAS NEAR SAN SEBASTIAN, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'51", long 67°02'40", at bridge on Highway 423, 1.3 mi (2.1 km) south of Quebrada El Salto Bridge on Highway 111, and 2.1 mi (3.4 km) west of Central La Plata.

DRAINAGE AREA.--58.2 mi<sup>2</sup> (150.7 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)
NOV 1991										
08...	1145	123	270	7.9	25.0	36	8.0	78	<10	24000
DEC										
18...	1240	44	280	8.2	24.0	6.1	9.6	116	<10	430
FEB 1992										
19...	1415	18	289	7.2	26.0	5.6	9.6	107	<10	K70
APR										
07...	1205	36	325	7.6	25.0	6.5	8.2	97	<10	440
JUL										
08...	1030	66	276	7.6	26.5	8.4	8.3	91	<10	2500
AUG										
27...	1100	250	315	7.4	25.0	110	7.4	69	11	20000

DATE	STREP-TOCOCCI FECAL, (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)
NOV 1991										
08...	20000	130	42	4.9	8.6	0.2	2.9	110	<0.5	18
DEC										
18...	240	--	--	--	--	--	--	100	--	--
FEB 1992										
19...	700	--	--	--	--	--	--	100	--	--
APR										
07...	560	120	40	5.4	16	0.6	4.1	110	<0.5	21
JUL										
08...	630	--	--	--	--	--	--	110	--	--
AUG										
27...	K13000	140	48	4.7	7.9	0.3	2.4	140	--	14

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
NOV 1991											
08...	11	0.10	21	190	19.8	46	1.17	0.030	1.20	0.060	0.54
DEC											
18...	--	--	--	--	--	1	1.47	0.030	1.50	0.050	0.25
FEB 1992											
19...	--	--	--	--	--	10	1.28	0.020	1.30	0.020	0.18
APR											
07...	17	0.10	34	204	125	13	1.42	0.080	1.50	0.060	0.24
JUL											
08...	--	--	--	--	--	14	1.16	0.040	1.20	0.060	--
AUG											
27...	9.5	0.10	16	185	63	138	--	<0.010	0.980	0.040	0.16

K = non-ideal count



[illegible]

## RIO CULEBRINAS BASIN

50147800 RIO CULEBRINAS AT HIGHWAY 404 NEAR MOCA, PR

LOCATION.--Lat 18°21'42", long 67°05'33", Hydrologic Unit 21010003, on right bank, at bridge on Highway 404, 0.3 mi (0.5 km) downstream from Quebrada Yagruma, and 2.8 mi (4.5 km) southeast of Moca.

DRAINAGE AREA.--71.2 mi<sup>2</sup> (184.4 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 45 ft (14 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	266	297	92	79	46	29	116	66	e700	129	688	240
2	261	198	89	81	e43	28	92	65	e480	124	357	236
3	237	179	86	61	e42	28	61	65	e300	133	174	187
4	189	183	87	57	e40	29	52	61	e220	e258	135	171
5	175	166	85	89	41	29	44	59	e200	e270	130	163
6	167	155	84	208	42	28	39	99	e350	e250	153	181
7	160	286	81	99	44	27	40	84	e800	e190	191	179
8	438	e200	81	80	42	33	42	62	e1800	e160	155	e2700
9	530	e160	78	75	40	31	297	59	e500	e170	128	e940
10	322	e155	76	71	40	27	341	65	e1600	e180	144	e1900
11	218	e150	76	72	41	28	473	93	e600	e190	108	e800
12	209	e145	75	74	39	36	184	276	e400	e230	96	e450
13	669	e140	71	71	38	42	117	189	e200	e170	107	e560
14	263	e140	71	68	39	29	124	173	e600	e620	1080	e860
15	272	e127	71	65	38	30	100	216	e480	e1100	238	e410
16	199	124	73	69	37	28	86	139	e350	e220	184	e520
17	172	119	82	60	36	30	e400	152	e300	e180	e153	e390
18	540	116	71	57	34	34	e170	103	e350	e270	e160	e460
19	2910	113	67	56	34	32	e820	625	323	e180	e140	e420
20	658	107	68	55	33	28	e350	304	248	e680	e190	e620
21	379	107	76	56	32	27	e180	165	216	e220	e680	e410
22	257	102	67	57	31	29	e220	165	198	e170	e600	e270
23	214	97	65	56	32	25	e110	3090	182	e160	e300	e680
24	190	97	62	54	31	26	92	686	249	e330	e270	e400
25	1780	95	61	54	31	27	85	426	187	e330	e640	e470
26	351	103	59	55	31	62	78	409	160	e160	e1400	e300
27	237	103	58	54	31	45	74	323	151	e150	744	e250
28	445	104	56	50	33	104	72	1350	143	e240	360	e600
29	272	100	55	49	31	175	68	e600	139	e190	286	e800
30	218	95	55	47	---	442	68	e350	135	e140	250	e2700
31	729	---	56	45	---	260	---	e1100	---	139	232	---
TOTAL	13927	4263	2234	2124	1072	1828	4995	11619	12561	7933	10473	19267
MEAN	449	142	72.1	68.5	37.0	59.0	166	375	419	256	338	642
MAX	2910	297	92	208	46	442	820	3090	1800	1100	1400	2700
MIN	160	95	55	45	31	25	39	59	135	124	96	163
AC-FT	27620	8460	4430	4210	2130	3630	9910	23050	24910	15740	20770	38220
CFSM	6.31	2.00	1.01	.96	.52	.83	2.34	5.26	5.88	3.59	4.74	9.02
IN.	7.28	2.23	1.17	1.11	.56	.96	2.61	6.07	6.56	4.14	5.47	10.07

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1992, BY WATER YEAR (WY)

	MEAN	354	145	77.1	69.8	65.9	135	471	389	321	344	520
MAX	1086	799	424	151	243	319	621	2054	769	847	831	1350
(WY)	1973	1982	1982	1971	1981	1981	1986	1986	1984	1979	1979	1978
MIN	231	108	72.1	51.2	37.0	30.4	26.4	96.7	82.7	91.8	119	145
(WY)	1968	1979	1992	1979	1992	1979	1970	1973	1974	1983	1970	1986

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1967 - 1992
ANNUAL TOTAL	89250	92296	
ANNUAL MEAN	245	252	295
HIGHEST ANNUAL MEAN			457
LOWEST ANNUAL MEAN			179
HIGHEST DAILY MEAN	5060	3090	13300
LOWEST DAILY MEAN	27	25	19
ANNUAL SEVEN-DAY MINIMUM	29	28	20
INSTANTANEOUS PEAK FLOW		16600	69000
INSTANTANEOUS PEAK STAGE		24.75	36.60
INSTANTANEOUS LOW FLOW		24	16
ANNUAL RUNOFF (AC-FT)	177000	183100	213900
ANNUAL RUNOFF (CFSM)	3.43	3.54	4.15
ANNUAL RUNOFF (INCHES)	46.63	48.22	56.34
10 PERCENT EXCEEDS	490	600	600
50 PERCENT EXCEEDS	113	141	138
90 PERCENT EXCEEDS	38	36	42

## RIO CULEBRINAS BASIN

445

50149100 RIO CULEBRINAS NEAR AGUADA, PR

## WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'03", long 67°09'40", at bridge on Highway 2, and 2.3 mi (3.7 km) northeast of Aguada plaza.

DRAINAGE AREA.--97.0 mi<sup>2</sup> (251.2 km<sup>2</sup>).

PERIOD OF RECORD.--Water years 1958, 1970 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
NOV 1991											
08...	0930	438	263	7.6	24.5	270	5.4	70	62	K86000	55000
DEC 18...	1045	110	304	8.0	23.5	4.7	4.8	62	13	K140	K110
FEB 1992											
19...	1145	47	330	7.7	24.5	4.6	6.3	79	<10	K60	K60
APR 08...	1100	50	312	7.3	27.0	9.7	7.2	86	16	K2000	920
JUL 07...	0945	150	320	7.1	26.5	29	6.6	82	11	250	730
SEP 02...	1045	250	326	6.6	27.0	9.3	3.6	46	18	29000	76000

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
NOV 1991										
08...	120	38	5.4	8.5	0.3	2.6	140	<0.5	11	11
DEC 18...	--	--	--	--	--	--	120	--	--	--
FEB 1992										
19...	--	--	--	--	--	--	130	--	--	--
APR 08...	130	44	5.8	14	0.5	2.9	130	<0.5	17	15
JUL 07...	--	--	--	--	--	--	130	--	--	--
SEP 02...	130	45	5.4	11	0.4	2.4	130	--	14	15

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)
NOV 1991										
08...	0.10	16	177	209	21	0.620	0.050	0.670	0.090	1.0
DEC 18...	--	--	--	--	1	--	<0.010	0.890	0.040	0.16
FEB 1992										
19...	--	--	--	--	11	--	<0.010	0.590	0.030	0.17
APR 08...	0.10	36	213	28.8	21	0.750	0.040	0.790	0.100	0.20
JUL 07...	--	--	--	--	38	0.800	0.030	0.830	0.070	0.13
SEP 02...	0.10	26	203	137	192	0.840	0.020	0.860	0.080	0.42

K = non-ideal count

## RIO CULEBRINAS BASIN

50149100 RIO CULEBRINAS NEAR AGUADA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
NOV 1991										
08...	1.1	1.8	7.8	0.130	2	200	40	10	29	100
DEC										
18...	0.20	1.1	4.8	0.090	--	--	--	--	--	--
FEB 1992										
19...	0.20	0.79	3.5	0.080	--	--	--	--	--	--
APR										
08...	0.30	1.1	4.8	0.080	1	<100	30	<1	<1	<10
JUL										
07...	0.20	1.0	4.6	0.050	--	--	--	--	--	--
SEP										
02...	0.50	1.4	6.0	0.080	--	--	--	--	--	--

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
NOV 1991										
08...	18000	18	660	0.10	<1	<1	120	<0.010	1	0.01
DEC										
18...	--	--	--	--	--	--	--	--	--	--
FEB 1992										
19...	--	--	--	--	--	--	--	--	--	--
APR										
08...	570	<1	30	<0.10	<1	<1	<10	<0.010	3	0.03
JUL										
07...	--	--	--	--	--	--	--	--	--	--
SEP										
02...	--	--	--	--	--	--	--	--	--	--

## PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUL 1992									
07...	0945	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUL 1992									
07...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUL 1992									
07...	<0.01	<0.10	<0.1	<1	<0.01	0.12	<0.01	<0.01	<0.01

50214500 QUEBRADA RESACA NEAR MONTE RESACA, CULEBRA, PR

LOCATION.--Lat 18°19'11", long 65°18'10", Hydrologic Unit 21010006, on right bank, 1.0 mi (1.6 km), north of Culebra City Hall, 0.9 mi (1.4 km) southwest of Monte Resaca, and 1.0 mi (1.6 km) east of Bahia Tamarindo.

DRAINAGE AREA.--0.23 mi<sup>2</sup> (0.60 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--October 1991 to September 1992 (gage-height only).

GAGE.--Water-stage recorder. Elevation of gage is 66 ft (20 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 5.30 ft or lower are considered zero flow.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height 7.49 ft (2.283 m), May 26; minimum, 4.78 ft (1.457 m), June 8,13,15.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		4.91	4.90	4.91	4.91	4.90	4.88	4.89	4.83	4.81	4.82	4.81
2		4.90	4.99	4.92	4.91	4.89	4.88	4.89	4.83	4.81	4.82	4.82
3		4.90	5.07	4.92	4.91	4.89	4.88	4.89	4.82	4.82	4.82	4.81
4		4.90	4.92	4.92	5.10	4.89	4.88	4.89	4.82	4.82	4.83	4.81
5		4.91	4.97	5.15	4.91	4.88	4.88	4.89	4.81	4.82	4.84	4.81
6		4.91	4.90	5.72	4.92	4.88	4.88	4.89	4.81	4.82	4.83	4.81
7		5.06	4.90	5.40	4.90	4.88	4.88	4.89	4.80	4.82	4.83	4.81
8	5.30	5.19	4.90	5.21	4.90	4.88	4.89	4.89	4.80	4.82	4.83	4.81
9	5.39	5.06	4.90	5.32	4.90	4.88	4.89	4.90	4.80	4.82	4.83	4.84
10	5.29	5.17	4.89	5.72	4.91	4.88	4.89	4.89	4.81	4.82	4.83	4.82
11	5.18	4.94	4.88	5.58	4.91	4.88	4.89	4.90	4.80	4.82	4.83	4.82
12	5.08	4.91	4.89	5.46	4.91	4.87	4.89	4.90	4.80	4.82	4.83	4.84
13	5.03	4.91	4.89	5.45	4.91	4.88	4.89	4.90	4.79	4.82	4.83	4.83
14	4.95	4.91	4.89	5.41	4.91	4.89	4.89	4.90	4.79	4.82	4.82	4.83
15	4.91	4.90	4.90	5.37	4.91	4.88	4.89	4.89	4.79	4.81	4.82	4.84
16	4.91	4.98	4.94	5.31	4.91	4.89	4.90	4.89	4.80	4.80	4.82	4.83
17	4.91	4.90	4.95	5.20	4.91	4.88	4.89	4.89	4.81	4.80	4.82	4.83
18	4.91	4.90	4.91	4.96	4.91	4.89	4.89	4.89	4.80	4.80	4.82	4.81
19	4.92	4.90	4.90	4.91	4.91	4.89	4.89	4.88	4.80	4.80	4.82	4.83
20	4.91	4.90	4.98	4.92	4.90	4.89	4.89	4.88	4.81	4.80	4.82	4.82
21	4.91	4.93	4.90	4.92	4.90	4.89	4.89	4.88	4.80	4.81	4.82	4.82
22	4.91	4.92	4.94	4.91	4.90	4.89	4.89	4.88	4.80	4.83	4.82	4.83
23	4.94	4.90	4.93	4.91	4.90	4.89	4.89	5.11	4.79	4.81	4.82	4.82
24	4.92	4.98	4.92	4.91	4.90	4.89	4.89	5.64	4.80	4.81	4.82	4.83
25	4.91	4.90	4.91	4.92	4.90	4.89	4.89	5.51	4.80	4.81	4.82	4.82
26	4.91	4.90	4.90	4.91	4.90	4.89	4.89	5.67	4.81	4.81	4.82	4.82
27	4.91	4.90	4.90	4.91	4.90	4.89	4.89	5.30	4.81	4.81	4.81	4.83
28	4.91	4.90	4.91	4.91	4.89	4.88	4.88	5.15	4.81	4.81	4.81	4.82
29	4.91	4.95	4.91	4.91	4.89	4.88	5.01	5.01	4.81	4.81	4.82	4.82
30	4.90	4.90	4.91	4.91	---	4.87	4.90	4.89	4.81	4.82	4.81	4.82
31	4.91	---	4.91	4.91	---	4.88	---	4.84	---	4.82	4.81	---
MEAN	---	4.94	4.92	5.12	4.91	4.88	4.89	4.99	4.81	4.81	4.82	4.82
MAX	---	5.19	5.07	5.72	5.10	4.90	5.01	5.67	4.83	4.83	4.84	4.84
MIN	---	4.90	4.88	4.91	4.89	4.87	4.88	4.84	4.79	4.80	4.81	4.81

## CULEBRA, PR

50215000 DRAINAGE CANAL AT CULEBRA AIRPORT, CULEBRA, PR

LOCATION.--Lat 18°19'06", long 65°18'32", Hydrologic Unit 21010006, on right bank, 0.5 mi (0.8 km), northwest of Culebra City Hall, 0.9 mi (1.4 km) northwest of desalination plant, 0.3 mi (0.5 km) northeast of Playa Sardinas I, and of Highway 251 at airport south perimeter fence.

DRAINAGE AREA.--0.08 mi<sup>2</sup> (0.20 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--October 1991 to September 1992 (gage-height only).

GAGE.--Water-stage recorder. Elevation of gage is 66 ft (22 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 10.25 ft or lower are considered zero flow.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height recorded, 10.27 ft (3.130 m), Nov. 16, but may have been higher during period of no gage-height record Jan. 5,6; minimum, 9.73 ft (2.966 m), March 6.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		10.22	10.20	---	10.11	---	10.08	10.05	10.02	10.06	10.25	---
2		10.20	10.21	---	10.12	10.12	10.08	10.05	10.02	10.06	10.25	---
3		10.21	10.20	---	10.14	10.12	10.08	---	10.01	10.06	10.25	---
4		10.21	10.19	---	10.16	10.15	10.09	10.02	10.02	10.06	10.25	---
5		10.21	10.20	---	10.16	10.12	10.08	10.03	10.02	10.05	10.25	---
6		10.23	10.18	---	10.16	---	10.07	10.03	10.02	---	10.25	---
7		10.24	10.16	---	10.17	---	10.07	10.03	10.02	10.23	10.25	---
8		10.24	10.20	---	10.17	10.13	---	10.03	10.04	10.25	10.25	---
9		10.24	10.19	---	10.16	10.13	10.02	10.03	10.04	10.24	10.25	10.25
10	10.24	10.24	10.18	---	10.16	10.13	10.02	10.03	10.07	---	10.25	10.25
11	10.23	10.23	10.17	---	10.14	10.13	10.02	10.04	10.09	10.22	10.25	10.25
12	10.23	10.24	10.16	---	10.12	10.13	10.02	10.04	10.05	10.22	10.25	10.25
13	10.23	10.23	10.15	---	10.11	10.13	10.02	10.04	10.04	10.24	---	10.25
14	10.23	10.23	---	---	10.11	10.14	10.02	10.04	10.04	10.25	---	10.25
15	10.23	10.21	---	10.16	10.11	10.14	10.02	10.04	10.07	10.25	---	10.25
16	10.23	10.23	---	10.16	10.12	10.14	10.02	10.04	10.06	10.25	---	10.25
17	10.23	10.23	---	10.15	10.11	10.15	10.02	10.04	10.05	10.25	---	10.25
18	10.23	10.22	---	10.15	10.11	10.16	10.02	10.04	10.05	10.25	---	10.25
19	10.23	10.22	---	10.12	10.13	10.18	10.03	10.05	10.05	10.25	---	10.25
20	10.21	10.19	---	10.10	10.12	10.18	10.04	10.04	10.06	10.25	---	10.25
21	10.19	10.21	---	10.10	10.12	10.18	10.05	10.04	10.08	10.25	---	10.25
22	10.21	10.22	---	10.10	10.13	10.19	10.04	10.04	10.03	10.25	---	10.25
23	10.22	10.21	---	10.10	10.12	10.20	10.05	10.05	10.04	10.25	---	10.25
24	10.23	10.21	---	10.11	10.11	10.20	10.05	10.05	10.04	10.25	---	10.25
25	10.23	10.21	---	10.13	10.10	10.20	10.05	10.04	10.04	10.25	---	10.25
26	10.23	10.22	---	10.15	10.10	10.20	10.05	10.04	10.05	10.25	---	10.25
27	10.23	10.22	---	10.13	10.09	10.14	10.05	10.05	10.05	10.25	---	10.25
28	10.23	10.19	---	10.12	10.09	10.08	10.05	10.03	10.06	10.25	---	10.25
29	10.23	10.20	---	10.12	10.09	10.08	10.05	10.07	10.06	10.25	---	10.25
30	10.23	10.21	---	10.12	---	10.07	10.05	10.02	10.06	10.25	---	10.25
31	10.23	---	---	10.11	---	10.07	---	10.02	---	10.25	---	---
MEAN	---	10.22	---	---	10.13	---	---	---	10.04	---	---	---
MAX	---	10.24	---	---	10.17	---	---	---	10.09	---	---	---
MIN	---	10.19	---	---	10.09	---	---	---	10.01	---	---	---

50231000 QUEBRADA COPRESI TRIBUTARY NEAR ISABEL SEGUNDA, VIEQUES, PR

LOCATION.--Lat 18°08'21", long 65°26'06", Hydrologic Unit 21010006, on right bank, 1.0 mi (1.6 km), south-southwest of Isabel Segunda Plaza, 0.5 mi (0.8 km) north of Destino school, and 1.5 mi (2.4 km) southeast of junction of Highways 200 and 201.

DRAINAGE AREA.--0.28 mi<sup>2</sup> (0.72 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--July 1991 to current year (gage-height only).

GAGE.--Water-stage recorder. Elevation of gage is 196 ft (60 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 8.20 ft or lower are considered zero flow.

EXTREMES FOR CURRENT PERIOD.--JULY TO SEPTEMBER 1991: Maximum gage-height, 9.75 ft (2.972 m), Aug. 27; minimum, 7.95 ft (2.423 m), Aug. 19, 20.

WATER YEAR 1992: Maximum gage-height, 10.51 ft (3.20 m), Jan. 5, 1992; minimum, 7.69 ft (2.344 m), Aug. 28.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1											8.50	8.64
2											8.49	8.66
3											8.49	8.64
4											8.46	8.63
5											8.45	8.62
6											8.47	8.63
7											8.48	8.65
8											8.44	8.63
9											8.40	8.67
10											8.36	8.66
11											8.32	8.63
12											8.27	8.60
13											8.23	8.59
14											8.20	8.56
15											8.16	8.55
16											8.14	8.54
17											8.11	8.53
18											8.08	8.53
19											8.04	8.53
20											8.16	8.53
21											8.61	8.53
22											8.64	---
23											8.59	---
24											8.56	---
25											8.57	---
26										8.56	8.57	---
27										8.54	8.77	---
28										8.54	8.74	---
29										8.54	8.71	---
30										8.52	8.67	---
31										---	8.65	---
MEAN										---	8.43	---
MAX										---	8.77	---
MIN										---	8.04	---

## VIEQUES, PR

50231000 QUEBRADA COFRESI TRIBUTARY NEAR ISABEL SEGUNDA, VIEQUES, PR-Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	8.53	8.49	8.69	8.46	---	7.97	8.64	8.52	8.01	7.71
2	---	---	8.53	8.47	8.66	8.53	---	8.26	8.65	8.50	7.96	7.71
3	---	---	8.56	8.44	8.66	8.52	---	8.36	8.65	8.47	7.93	7.71
4	8.55	---	8.52	8.43	8.69	8.50	---	8.33	8.64	8.45	7.86	7.72
5	8.49	---	8.55	8.64	8.66	8.45	---	8.27	8.63	8.40	8.19	7.72
6	8.47	---	8.52	8.87	8.67	8.43	---	8.21	8.63	8.36	8.51	7.72
7	8.44	---	8.51	8.72	8.66	8.45	8.44	8.19	8.64	8.31	8.50	7.92
8	8.44	---	8.56	8.70	8.65	8.53	8.40	8.14	8.64	8.25	8.51	8.48
9	8.43	---	8.51	8.73	8.65	8.47	8.39	8.08	8.64	8.22	8.51	8.50
10	8.43	---	8.51	8.73	8.64	8.44	8.35	8.01	8.64	8.17	8.50	8.51
11	8.43	---	8.50	8.72	8.62	8.44	8.31	7.96	8.64	8.15	8.43	8.53
12	8.41	---	8.48	8.70	8.61	8.43	8.28	7.91	8.64	8.31	8.34	8.51
13	8.41	---	8.47	---	8.61	8.42	8.26	7.86	8.65	8.36	8.26	8.51
14	8.38	---	8.47	---	8.62	8.47	8.22	7.82	8.65	8.33	8.23	8.55
15	8.31	---	8.48	---	8.60	8.51	8.18	7.77	8.65	8.28	8.47	8.49
16	8.30	---	8.60	---	8.58	8.46	8.14	7.76	8.64	8.22	8.50	8.56
17	---	---	8.53	---	8.58	8.48	8.10	7.77	8.63	8.39	8.47	---
18	---	---	8.49	---	8.58	8.50	8.04	7.76	8.63	8.56	8.44	---
19	---	---	8.47	---	8.57	8.47	8.01	7.75	8.62	8.54	8.36	---
20	---	---	8.50	---	8.56	8.45	8.00	7.77	8.65	8.52	8.29	---
21	---	8.50	8.51	---	8.56	8.46	7.99	7.91	8.65	8.54	8.20	---
22	---	8.60	8.48	---	8.57	8.52	7.98	7.96	8.65	8.59	8.11	---
23	---	8.61	8.45	8.71	8.55	8.49	7.95	8.14	8.65	8.57	8.02	---
24	---	8.56	8.45	8.77	8.54	8.48	7.90	8.78	8.64	8.55	7.97	---
25	---	8.56	8.46	8.75	8.53	---	7.87	8.63	8.63	8.50	7.91	---
26	---	8.58	8.46	8.75	8.52	---	7.82	8.65	8.61	8.43	7.83	---
27	---	8.56	8.45	8.72	8.50	---	7.79	8.65	8.60	8.34	7.77	---
28	---	8.54	8.42	8.71	8.50	---	7.78	8.63	8.59	8.28	7.71	---
29	---	8.54	8.42	8.69	8.48	---	7.78	8.64	8.56	8.20	7.71	---
30	---	8.54	8.40	8.69	---	---	7.78	8.64	8.54	8.12	7.71	---
31	---	---	8.52	8.69	---	---	---	8.64	---	8.05	7.71	---
MEAN	---	---	8.49	---	8.60	---	---	8.17	8.63	8.37	8.16	---
MAX	---	---	8.60	---	8.69	---	---	8.78	8.65	8.59	8.51	---
MIN	---	---	8.40	---	8.48	---	---	7.75	8.54	8.05	7.71	---



## VIEQUES, PR

451

50232000 QUEBRADA LA MINA NEAR ESPERANZA, VIEQUES, PR

LOCATION.--Lat 18°06'54", long 65°28'15", Hydrologic Unit 21010006, on left bank 300 ft (91 m) west from state road 996, 1.4 mi (2.2 km) south of Cerro Martineau, 0.7 mi (1.1 km) east-northeast of Colonia Puerto Real on road 201 and 1.2 mi (1.9 km) north of Esperanza.

DRAINAGE AREA.--0.68 mi<sup>2</sup> (1.76 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--July 1991 to current year (gage-height only).

GAGE.--Water-stage recorder. Elevation of gage is 98 ft (30 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 9.20 ft or lower are considered zero flow.

EXTREMES FOR CURRENT PERIOD.--JULY TO SEPTEMBER 1991: Maximum gage-height, 9.18 ft (2.798 m), Aug. 27; minimum, 8.92 ft (2.719 m), July 24-26.

WATER YEAR 1992: Maximum gage-height, 9.51 ft (2.899 m), Jan 5; minimum, 8.81 ft (2.685 m), many days.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1											8.94	8.94
2											8.95	8.94
3											8.95	8.94
4											8.94	8.94
5											8.94	8.94
6											8.95	8.94
7											8.96	8.94
8											8.96	8.94
9											8.96	8.94
10											8.96	8.94
11											8.97	8.94
12											8.97	8.94
13											8.97	8.94
14											8.97	8.94
15											8.97	8.94
16											8.96	8.94
17											8.96	8.95
18											8.96	8.95
19											8.96	8.94
20											8.96	8.94
21											8.95	8.94
22											8.99	8.94
23											8.96	8.94
24											8.96	8.94
25										8.93	8.96	8.94
26										8.93	8.96	8.94
27										8.94	9.01	8.94
28										8.93	8.95	8.94
29										8.94	8.94	8.96
30										8.94	8.94	8.94
31										8.94	8.94	---
MEAN										---	8.96	8.94
MAX										---	9.01	8.96
MIN										---	8.94	8.94

## VIEQUES, PR

50232000 QUEBRADA LA MINA NEAR ESPERANZA, VIEQUES, PR-Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.93	8.97	8.84	8.83	8.82	8.83	8.82	8.84	8.82	8.84	8.85	8.85
2	8.93	8.88	8.84	8.83	8.82	8.82	8.82	8.83	8.82	8.84	8.85	8.85
3	8.92	8.88	8.84	8.83	8.82	8.82	8.82	8.83	8.82	8.84	8.85	8.85
4	8.91	8.87	8.84	8.83	8.82	8.81	8.82	8.85	8.82	8.84	8.85	8.85
5	8.91	8.87	8.84	8.90	8.82	8.81	8.82	8.85	8.83	8.84	8.90	8.85
6	8.91	8.87	8.83	---	8.82	8.81	8.83	8.86	8.83	8.85	8.85	8.85
7	8.91	9.07	8.83	---	8.82	8.81	8.84	8.85	8.83	8.85	8.85	8.85
8	8.91	9.18	8.83	8.87	8.82	8.81	8.84	8.85	8.83	8.85	8.85	8.85
9	8.93	9.13	8.83	8.83	8.82	8.81	8.84	8.85	8.83	8.85	8.85	8.85
10	8.91	9.00	8.83	8.87	8.82	8.81	8.84	8.85	8.83	8.85	8.85	8.85
11	8.90	8.86	8.83	8.82	8.82	8.81	8.84	8.85	8.83	8.85	8.85	8.85
12	8.90	8.86	8.83	8.82	8.82	8.81	8.84	8.84	8.83	8.85	8.85	8.85
13	8.90	8.86	8.83	8.81	8.82	8.81	8.84	8.85	8.83	8.85	8.85	8.86
14	8.90	8.85	8.83	8.82	8.82	8.82	8.84	8.85	8.83	8.85	8.85	8.86
15	8.90	8.86	8.83	8.82	8.82	8.81	8.85	8.85	8.84	8.85	8.85	8.86
16	8.90	8.86	8.83	8.82	8.82	8.81	8.85	8.85	8.84	8.85	8.85	8.85
17	8.90	8.86	8.83	8.82	8.82	8.81	8.85	8.85	8.84	8.85	8.85	8.85
18	8.90	8.85	8.83	8.82	8.82	8.81	8.85	8.85	8.84	8.85	8.85	8.85
19	8.90	8.85	8.83	8.82	8.82	8.81	8.85	8.85	8.84	8.85	8.85	8.85
20	8.89	8.85	8.83	8.82	8.82	8.81	8.85	8.85	8.84	8.85	8.85	8.88
21	8.89	8.96	8.83	8.82	8.83	8.81	8.85	8.85	8.84	8.85	8.85	8.92
22	8.89	9.12	8.83	8.82	8.85	8.81	8.85	8.85	8.84	8.85	8.85	8.92
23	8.89	9.09	8.83	8.82	8.85	8.81	8.85	8.87	8.84	8.85	8.85	8.90
24	8.89	9.08	8.83	8.82	8.85	8.81	8.85	9.08	8.84	8.85	8.85	8.90
25	8.88	9.00	8.83	8.82	8.85	8.82	8.85	8.98	8.84	8.85	8.85	8.90
26	8.88	9.12	8.83	8.82	8.85	8.82	8.85	8.96	8.85	8.85	8.85	8.90
27	8.88	9.08	8.83	8.82	8.83	8.82	8.85	9.04	8.84	8.85	8.85	8.90
28	8.88	8.95	8.83	8.82	8.83	8.82	8.85	8.90	8.84	8.85	8.85	8.90
29	8.88	8.84	8.83	8.82	8.83	8.82	8.85	8.84	8.84	8.85	8.85	8.90
30	8.88	8.84	8.83	8.82	---	8.82	8.84	8.82	8.84	8.85	8.85	8.90
31	8.88	---	8.83	8.82	---	8.82	---	8.82	---	8.85	8.85	---
MEAN	8.90	8.95	8.83	---	8.83	8.81	8.84	8.87	8.83	8.85	8.85	8.87
MAX	8.93	9.18	8.84	---	8.85	8.83	8.85	9.08	8.85	8.85	8.90	8.92
MIN	8.88	8.84	8.83	---	8.82	8.81	8.82	8.82	8.82	8.84	8.85	8.85

50233000 QUEBRADA PILON AT COLONIA PUERTO REAL, VIEQUES, PR

LOCATION.--Lat 18°06'37", long 65°28'51", Hydrologic Unit 21010006, on left bank 1.2 mi (1.9 km) southeast of Cerro Sonadora, 1.2 mi (1.9 km) northwest of Esperanza, 0.4 mi (0.6 km) south of junction of Highways 895 and 201.

DRAINAGE AREA.--0.67 mi<sup>2</sup> (1.74 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--July 1991 to current year (gage-height only).

GAGE.--Water-stage recorder. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 7.20 ft or lower are considered zero flow.

EXTREMES FOR CURRENT PERIOD.--JULY TO SEPTEMBER 1991: Maximum gage-height, 7.33 ft (2.234 m), Aug. 20; minimum, 7.08 ft (2.158 m), Sept. 24-27.

WATER YEAR 1992: Maximum gage-height, 7.36 ft (2.243 m), Aug. 16; minimum, 6.89 ft (2.100 m), Apr 9-13.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1											7.29	7.23
2											7.29	7.23
3											7.28	7.21
4											7.28	7.21
5											7.28	7.21
6											7.29	7.21
7											7.28	7.19
8											7.27	7.20
9											7.27	7.19
10											7.29	7.18
11											7.29	7.18
12											7.28	7.17
13											7.27	7.16
14											7.28	7.15
15											7.28	7.14
16											7.28	7.14
17											7.26	7.15
18											7.25	7.15
19											7.22	7.15
20											7.27	7.14
21											7.31	7.14
22											7.30	7.16
23											7.28	7.15
24											7.26	7.11
25											7.26	7.10
26										7.30	7.26	7.11
27										7.30	7.26	7.12
28										7.30	7.25	7.12
29										7.30	7.24	7.14
30										7.30	7.24	7.12
31										7.29	7.23	---
MEAN										---	7.27	7.16
MAX										---	7.31	7.23
MIN										---	7.22	7.10

## VIEQUES, PR

50233000 QUEBRADA PILON AT COLONIA PUERTO REAL, VIEQUES, PR--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.12	7.08	7.30	7.31	---	---	7.11	7.12	---	7.17	6.96	7.15
2	7.12	7.29	7.30	7.31	---	---	7.11	7.11	---	7.15	6.96	7.16
3	7.12	7.28	7.31	7.31	---	---	7.09	7.08	---	7.13	6.96	7.16
4	7.14	7.29	7.31	7.31	---	---	7.08	7.04	---	7.12	6.96	7.16
5	7.14	7.30	7.31	7.30	---	---	7.07	7.03	---	7.08	7.22	7.16
6	7.14	7.30	7.32	7.29	---	---	7.05	7.07	---	7.05	7.16	7.16
7	7.13	7.29	7.32	7.30	---	---	7.03	7.05	---	7.02	7.19	7.16
8	7.10	7.29	7.32	7.29	---	---	7.02	7.01	---	7.04	7.15	7.16
9	7.14	7.29	7.32	7.28	---	---	7.01	6.98	---	7.03	7.06	7.16
10	7.14	7.28	7.32	7.28	---	---	6.98	6.99	---	6.98	7.06	7.16
11	7.14	7.26	7.32	7.27	---	---	6.96	6.99	---	7.10	7.21	7.16
12	7.15	7.26	7.33	7.25	---	---	6.94	7.00	---	7.04	7.19	7.16
13	7.16	7.26	7.33	7.24	---	---	6.93	7.00	---	6.98	7.16	7.16
14	7.19	7.25	7.33	7.23	---	---	6.94	7.00	---	6.96	7.28	7.07
15	7.19	7.31	7.33	7.25	---	---	6.95	7.00	---	6.96	7.31	6.95
16	7.15	7.32	7.33	7.25	---	---	6.93	7.00	---	6.95	7.28	6.95
17	7.14	7.31	7.33	7.23	---	---	7.02	7.01	---	7.17	7.18	6.96
18	7.14	7.31	7.33	7.23	---	---	7.07	7.01	7.23	7.15	7.15	6.95
19	7.13	7.30	7.33	7.23	---	---	7.07	7.01	7.23	7.13	7.16	7.02
20	7.12	7.30	7.32	7.22	---	---	7.05	7.01	7.23	7.05	7.16	---
21	7.12	7.31	7.32	7.22	---	---	7.01	7.02	7.23	7.01	7.16	---
22	7.12	7.31	7.32	7.22	---	---	6.96	7.02	7.23	7.16	7.16	---
23	7.12	7.30	7.32	7.24	---	---	6.95	7.04	7.22	7.12	7.16	---
24	7.11	7.31	7.33	7.24	---	---	6.95	7.16	7.21	7.13	7.16	---
25	7.10	7.31	7.33	7.24	---	---	6.96	7.16	7.21	7.14	7.16	---
26	7.10	7.31	7.33	7.24	---	7.27	6.96	7.17	7.21	7.03	7.16	---
27	7.09	7.31	7.33	7.23	---	7.26	6.95	7.18	7.21	6.98	7.15	---
28	7.08	7.31	7.32	7.23	---	7.21	6.95	7.17	7.20	6.97	7.15	---
29	7.09	7.31	7.32	7.23	---	7.18	6.97	7.17	7.20	6.96	7.16	---
30	7.09	7.31	7.32	---	---	7.17	7.11	7.18	7.19	6.96	7.15	---
31	7.08	---	7.32	---	---	7.15	---	7.19	---	6.96	7.16	---
MEAN	7.13	7.29	7.32	---	---	---	7.01	7.06	---	7.05	7.14	---
MAX	7.19	7.32	7.33	---	---	---	7.11	7.19	---	7.17	7.31	---
MIN	7.08	7.08	7.30	---	---	---	6.93	6.98	---	6.95	6.96	---



**Discharge at  
Parcial-Record Stations  
in Puerto Rico**

## DISCHARGE AT PARTIAL-RECORD STATIONS

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are useable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

## Low-flow partial-record stations

Measurements of streamflow in the areas covered by this report made at low-flow partial-record stations are given in the following table. These measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of nearby stream when continuous records are available, will give a picture of the low-flow potentiality of stream.

## Discharge measurements made at low-flow partial-records stations during water year 1992

PUBLICATION RECORD						
STATION NUMBER	STATION NAME	LOCATION  AND  BASIN	DRAINAGE AREA mi <sup>2</sup> (km <sup>2</sup> )	DATE	TIME	STREAM- FLOW ft <sup>3</sup> /s (m <sup>3</sup> /s)
Río Melanía basin						
50095900	Quebrada Melanía near Jobos, PR	Lat 17°57'51", long 66°59'30". Hydrologic unit 21010004. 0.6 mi (1.0 km) upstream from bridge on Hwy 3.	2.75 (7.13)	1/28/92	0715	0.52 (0.015)
				6/19/92	0955	0.32 (0.009)
50097000	Quebrada Cimarrona near Jobos, PR	Lat 17°59'18", long 66°10'59". Hydrologic unit 21010004. Barrio Pozo Hondo, 2.4 mi (3.7 km) north from Puerto de Jobos, and 4.0 mi (6.4 km) northwest from Guayama Plaza.	3.09 (8.00)	1/28/92	0815	0.00
				6/19/92	0915	0.11 (0.003)
Río Seco basin						
50097800	Río Seco near Central Guamaní, PR	Lat 17°58'06", long 66°10'52". Hydrologic unit 21010004. At Bridge on Hwy 3, .2 mi (0.3 (0.3 km) north of Central Guamaní, and 1.2 mi (1.9 km) northwest of Jobos.	11.2 (29.0)	1/28/92	0745	0.00
				6/19/92	0942	0.00
Río Salinas (Nigua) basin						
50100200	Río Lapa near Rabo del Buey, PR	Lat 18°03'36", long 66°14'28". Hydrologic unit 21010004. Barrio Lapa, at Hwy 1, 1.6 mi (2.6 km) upstream from conflu- ence with Río Majada, and 6.2 mi (10 km) southwest from Cayey Plaza.	10.0 (25.8)	1/28/92	1300	4.49 (0.127)
				6/04/92	0940	17.2 (0.487)
				6/30/92	0730	4.19 (0.119)
				9/29/92	1335	1.15 (0.32)
50100300	Río Jájome at Jájome, PR	Lat 18°03'49", long 66°09'38". Hydrologic unit 21010004. Barrio Jájome Bajo, at Hwy 708, 3.5 mi (5.6 km) south from Cayey Plaza.	4.56 (11.8)	1/28/92	0850	1.54 (0.044)
				6/04/92	1050	3.63 (0.102)
				6/30/92	0820	2.18 (0.062)
				9/29/92	1135	2.09 (0.059)
50100450	Río Majada at La Plena, PR	Lat 18°02'40", long 66°12'27". Hydrologic unit 21010004. Barrio Quebrada Yegua, at Hwy 712, 2.0 mi (3.2 km) northeast from Albergue Olímpico, and 5.5 mi (8.8 km) southwest from Cayey Plaza.	16.7 (43.2)	1/28/92	1005	3.91 (0.111)
				6/04/92	1135	16.3 (0.462)
				6/30/92	0910	6.66 (0.189)
				9/29/92	1215	3.86 (0.109)
50100700	Río Majada at Rabo del Buey, PR	Lat 18°02'17", long 66°14'27". Hydrologic unit 21010004. Barrio Lapa, 0.2 mi (0.3 km) upstream from confluence with Río Lapa, 400 ft upstream from intersection of Hwy's 1 and 712, and 0.2 mi (0.3 km) northwest from Albergue Olímpico.	22.2 (57.5)	1/28/92	1105	3.51 (0.099)
				6/04/92	1225	20.3 (0.575)
				6/30/92	1000	6.91 (0.196)
				9/29/92	1300	3.21 (0.091)

DISCHARGE AT PARTIAL-RECORD STATIONS  
Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION  AND  BASIN	DRAINAGE AREA mi <sup>2</sup> (km <sup>2</sup> )	DATE	TIME	STREAM FLOWS ft <sup>3</sup> /s (m <sup>3</sup> /s)
50102000	Río Salinas at Salinas, PR	Lat 17°58'42", long 66°18'17". Hydrologic unit 21010004. At Bridge on Hwy 1, and 0.4 mi (0.6 km) west from Salinas Plaza.  Río Jueyes basin	52.4 (136)	1/28/92  6/30/92	1210  1050	0.45 (0.013) 4.59 (0.130)
50102400	Río Jueyes at Río Jueyes, PR	Lat 18°01'17", long 66°19'51". Hydrologic unit 21010004. Barrio Río Jueyes, at Hwy 154, 1.3 mi (2.1 km) upstream from Hwy 52, and 4.5 mi (7.2 km) Southeast from Coamo Plaza.	3.50 (9.06)	1/29/92  6/05/92	1100  0730	0.24 (0.007) 0.50 (0.014)
50103000	Río Jueyes near Jauca, PR	Lat 17°58'45", long 66°20'20". Hydrologic unit 21010004. At bridge on Hwy 1, 1.8 mi (2.9 km) east of Jaucas, and 2.7 mi (4.3 km) west of Salinas Plaza.  Río Coamo basin	8.56 (22.2)	1/29/92  6/05/92	1130  0800	0.00  0.00
50104000	Río Coamo near Pasto, PR	Lat 18°07'08", long 66°21'52". Hydrologic unit 21010004. Barrio Pasto, at Hwy 555, 2.6 mi (4.2 km) northwest from Coamo Plaza.	9.05 (23.4)	1/30/92  6/04/92	1130  1520	5.98 (0.169) 31.0 (0.878)
50105400	Río Cuyón at La Guava, PR	Lat 18°05'20", long 66°16'17". Hydrologic unit 21010004. Barrio Algarrobo, at Hwy 717, 1.0 mi (1.6 km) southwest from Cerro Verdún, and 5.6 mi (9.0 km) east from Coamo Plaza.	4.33 (11.2)	1/28/92  6/04/92  6/30/92  9/29/92	1355  0845  0650  1430	1.09 (0.031) 3.28 (0.093) 0.92 (0.026) 0.41 (0.012)
50105600	Río Cuyón near Coamo, PR	Lat 18°05'25", long 66°18'50". Hydrologic unit 21010004. Barrio Cuyón, at Hwy 14, 0.8 mi (1.3 km) southeast from Cerro Santa Ana, and 2.8 mi (4.5 km) northeast from Coamo Plaza.	18.1 (46.8)	1/29/92  6/03/92	0655  0650	5.52 (0.156) 22.3 (0.632)
50105900	Quebrada Montería near Coamo, PR	Lat 18°05'13", long 66°21'04". Hydrologic unit 21010004. Barrio Pasto, at confluence with Río Cuyón, and 0.5 mi (0.8 km) northeast from Coamo Plaza.	7.12 (18.4)	1/29/92  6/03/92	0840  0740	2.23 (0.063) 14.4 (0.408)
50106100	Río Coamo at Coamo, PR	Lat 18°05'00", long 66°21'16". Hydrologic unit 21010004. Coamo, at Hwy 14, 500 ft (152 m) downstream from con- fluence with Río Cuyón, and 0.2 mi (0.3 km) east from Coamo Plaza.	43.5 (113)	1/29/92  6/03/92  6/12/92	0750  0835  0840	17.5 (0.496) 104 (2.945) 45.0 (1.274)
50106600	Río de La Mina near Coamo, PR	Lat 18°05'04", long 66°23'22". Hydrologic Unit 21010004. Barrio Santa Catalina, at Hwy 150, 2.2 mi (3.5 km) west from Coamo Plaza.	2.62 (6.78)	1/30/92  6/03/92	0950  1420	0.86 (0.024) 3.02 (0.086)
50106650	Río del Pasto near Coamo, PR	Lat 18°04'49", long 66°22'32". Hydrologic unit 21010004. Barrio San Idelfonso, at Hwy 150, 1.3 mi (2.1 km) west from Coamo Plaza.	1.80 (4.67)	1/30/92  6/03/92	0915  1455	1.28 (0.036) 4.14 (0.117)

DISCHARGE AT PARTIAL-RECORD STATIONS  
Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi <sup>2</sup> (km <sup>2</sup> )	DATE	TIME	STREAM FLOWS ft <sup>3</sup> /s (m <sup>3</sup> /s)
50106700	Río de La Mina at Coamo, PR	Lat 18°03'56", long 66°22'29". Hydrologic unit 21010004. Barrio San Idelfonso, at Hwy 14, 0.2 mi (0.3 km) upstream from confluence with Río Coamo, and 1.7 mi (2.7 km) from Coamo Plaza.	5.88 (15.2)	1/30/92 6/03/92	0810 1245	2.69 (0.076) 9.61 (0.272)
50106820	Río Coamo at Baños de Coamo, PR	Lat 18°02'23", long 66°22'31". Hydrologic unit 21010004. Barrio San Idelfonso, at the end of Hwy 546, 3.3 mi (5.3 km) southwest from Coamo Plaza.	58.5 (152)	1/29/92 6/03/92 6/12/92	1000 0940 0940	22.5 (0.637) 80.1 (2.268) 50.2 (1.422)
50107000	Río Coamo near Santa Isabel, PR	Lat 17°58'36", long 66°25'10". Hydrologic unit 21010004. At bridge on Hwy 1 at Velázquez, 1.1 mi (1.8 km) northwest of Santa Isabel Plaza.	69.3 (179)	1/29/92 6/19/92	1150 0720	17.6 (0.498) 36.2 (1.025)
Río Descalabrado basin						
50107800	Río Descalabrado near Sanja Blanca, PR	Lat 18°05'24", long 66°24'30". Hydrologic unit 21010004. Barrio Santa Catalina, at Hwy 150, 2.0 mi (3.2 km) southeast from Lago Toa Vaca, and 3.4 mi (5.5 km) northwest from Coamo Plaza.	4.27 (11.0)	1/30/92 6/03/92	1030 1335	1.80 (0.051) 9.17 (0.260)
50108200	Río Descalabrado at Las Ollas, PR	Lat 18°02'10", long 66°25'36". Hydrologic unit 21010004. Barrio Descalabrado, at Hwy 536, 0.6 mi (1.0 km) upstream from Hwy 52, and 2.2 mi (3.5 km) northwest from Cerro del Muerto.	13.9 (36.0)	1/30/92 6/05/92	0710 1000	2.62 (0.074) 20.2 (0.572)
50108500	Río Descalabrado near Santa Isabel, PR	Lat 17°58'45", long 66°26'35". Hydrologic unit 21010004. At bridge on Hwy 1, 0.9 mi (1.4 km) upstream from mouth, and 3.1 mi (5.0 km) northwest of Santa Isabel.	18.1 (46.9)	1/29/92 6/05/92	1240 0820	0.34 (0.010) 13.2 (0.374)
Río Cañas basin						
50109000	Río Cañas near Juana Díaz, PR	Lat 18°02'41", long 66°27'26". Hydrologic unit 21010004. Barrio Río Cañas Arriba, at Hwy 14, 3.3 east from Juana Díaz Plaza.	2.88 (7.47)	1/29/92 6/03/92	1335 1150	0.03 (0.001) 3.50 (0.099)
50109500	Río Cañas near Santa Isabel, PR	Lat 17°59'39", long 66°28'33". Hydrologic unit 21010004. At bridge on Hwy 1, 0.5 mi (0.8 km) from mouth, 0.6 mi (1.0 km) east of Pastillo, and 5.1 mi (8.2 km) northwest of Santa Isabel Plaza.	6.38 (16.5)	1/29/92 6/05/92	1310 0910	0.00 2.46 (0.070)
Río Jacaguas basin						
50110550	Río Jacaguas at Villalba, PR	Lat 18°07'37", long 66°29'42". Hydrologic unit 21010004. Barrio Hato Puerco Arriba, upstream from Water Treatment Plant, 100 ft (30 m) downstream from confluence with Quebrada Achote, 0.2 mi (0.3 km) southwest from Villalba.	12.2 (31.7)	2/06/92 6/09/92	1100 0955	40.2 (1.138) 109 (3.087)
50110700	Río Toa Vaca at Pedro García, PR	Lat 18°08'11", long 66°23'47". Hydrologic unit 21010004. Barrio Pedro García, 2.1 mi (3.4 km) southeast from intersection of Hwy's 143 and 155, and 4.1 mi (6.6 km) northeast Lago Toa Vaca.	3.09 (8.00)	2/06/92 6/09/92	1412 0720	4.37 (0.124) 4.37 (0.124)



DISCHARGE AT PARTIAL-RECORD STATIONS  
Low-flow partial-record stations--Continued

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STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi <sup>2</sup> (km <sup>2</sup> )	DATE	TIME	STREAM FLOWS ft <sup>3</sup> /s (m <sup>3</sup> /s)
50110900	Río Toa Vaca upstream from Lago Toa Vaca, PR	Lat 18°07'36", long 66°27'25". Hydrologic unit 21010004. Barrio Caonillas Arriba, at Hwy 553, 0.5 mi (0.8 km) upstream Lago Toa Vaca, and 2.4 mi (3.9 km) east from Villalba.	14.2 (36.8)	2/06/92 6/09/92	1249 0850	11.8 (0.334) 37.5 (1.062)
50111720	Quebrada Guanábana near Juana Díaz, PR	Lat 18°03'12", long 66°29'02". Hydrologic unit 21010004. Barrio Tijeras, at Hwy 14, 1.5 mi (2.4 km) east from Juana Díaz Plaza.	1.72 (4.46)	2/04/92 6/09/92	0920 1100	0.00 0.00
Río Inabón basin						
50112400	Río Inabón at Real Anón, PR	Lat 18°07'22", long 66°34'20". Hydrologic unit 21010004. Barrio Anón, at Hwy 511, 1.0 mi (1.6 km) northeast from Cerro Santo Domingo, and 4.5 mi (7.2 km) northwest from Lago Guayabal.	6.00 (15.4)	2/05/92 6/10/92	1503 0740	6.08 (0.172) 15.8 (0.447)
50112700	Río Guayo near Collores, PR	Lat 18°07'24", long 66°33'27". Hydrologic unit 21010004. Barrio Collores, at Hwy 5.17 about 400 ft (122 m) west from escuela Guaraguao 0.9 mi (1.4 km) northwest from inter- section of Hwy's 517 and 5.12, and 3.5 mi (5.6 km) northwest from Lago Toa Vaca.	1.67 (4.34)	2/05/92 6/09/92	1324 1235	1.47 (0.042) 5.15 (0.146)
50112750	Quebrada Indalecia at Collores, PR	Lat 18°06'33", long 66°32'20". Hydrologic unit 21010004. Barrio Collores, 200 ft (61 m) upstream from conflu- ence with Río Guayo, 0.9 mi (1.4 km) northeast from Cerro Agustinillo, and 2.2 mi (3.5 km) northwest from Lago Guayabal.	3.52 (9.11)	2/05/92 6/09/92	1258 1140	0.00 5.65 (0.160)
50112800	Río Guayo upstream from Diversion at Collores, PR	Lat 18°05'10", long 66°32'24". Hydrologic unit 21010004. Barrio Collores, 2.1 mi (3.4 km) southwest from Lago Guayabal, and 3.1 mi (5.0 km) northwest from Juana Díaz Plaza.	9.55 (24.7)	2/05/92 6/09/92	1410 1325	4.80 (0.136) 15.9 (0.450)
Río Bucaná basin						
50113790	Río San Patricio upstream from Lago Cerrillos, PR	Lat 18°07'12", long 66°36'27". Hydrologic unit 21010004. Barrio Maragüez, 1.5 mi (2.4 km) north- west from Cerro Santo Domingo, 3.6 mi (5.8 km) northwest from Lago Cerrillos, and 7.3 mi from (12 km) Degetau Plaza, Ponce.	5.84 (15.1)	2/04/92 6/10/92	1129 1025	4.68 (0.132) 10.3 (0.292)
50113800	Río Cerrillos upstream from Lago Cerrillos, PR	Lat 18°07'01", long 66°36'17". Hydrologic unit 21010004. At barrio Maragüez, 1.3 mi (2.1 km) west from Cerro Santo Domingo, 3.3 mi (5.3 km) northwest from Lago Cerrillos, and 7.2 mi (12 km) from Degetau Plaza, Ponce.	11.9 (30.7)	2/04/92 6/10/92	1212 1115	11.8 (0.334) 26.3 (0.745)
50114150	Quebrada Ausubo near Ponce, PR	Lat 18°03'09", long 66°35'08". Hydrologic unit 21010004. At Barrio Machuelo Arriba, 2.4 mi (3.9 km) west from Coto Laurel, 1.5 mi (2.4 km) south from Lago Cerrillos, and 3.8 mi (6.1 km) northeast from Degetau Plaza, Ponce.	1.18 (3.05)	2/03/92 6/10/92	1432 1315	0.00 0.00

## DISCHARGE AT PARTIAL-RECORD STATIONS

## Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION	DRAINAGE AREA mi <sup>2</sup> (km <sup>2</sup> )	DATE	TIME	STREAM FLOWS ft <sup>3</sup> /s (m <sup>3</sup> /s)
		AND  BASIN				
50114200	Río Bayagán near Ponce, PR	Lat 18°02'51", long 66°35'12".	3.82 (9.88)	2/03/92	1546	0.00
		Hydrologic unit 21010004. At Barrio Machuelo Arriba, 2.5 mi (4.0 Km) west of Coto Laurel, 1.9 mi (3.0 km) south from Lago Cerrillos, and 3.0 mi (4.8 km) northeast from Degetau Plaza, Ponce.		6/10/92	1330	0.00
50114600	Río Bucaná at Ponce, PR	Lat 18°00'28", long 66°35'36".	27.3 (70.7)	2/03/92	0647	57.9 (1.640)
		Hydrologic unit 21010004. At bridge on Hwy 1, 0.2 mi (0.3 km) east of intersection of Hwys 1 and 2, 1.5 mi (2.4 km) east of Degetau Plaza in Ponce, 3.1 mi (5.0 km) upstream from mouth.		6/10/92	1440	43.5 (1.232)
Río Portugués basin						
50114900	Río Portugués near Tibes, PR	Lat 18°04'26", long 66°38'35".	7.27 (18.8)	2/03/92	1225	5.41 (0.153)
		Hydrologic unit 21010004. At barrio Tibes, 0.5 mi (0.8 km) southwest from Cerro del Diablo, 6.0 mi (9.6 km) northeast from Peñuelas, and 6.2 mi (10 km) north from Ponce.		6/11/92	1450	11.7 (0.331)
50115400	Río Portugués near Ponce, PR	Lat 18°02'27", long 66°36'41".	12.2 (31.6)	2/03/92	1123	7.10 (0.201)
		Hydrologic unit 21010004. At barrio Portugués, 1.0 mi (1.6 km) west from Jardines de Ponce, 0.4 mi (0.6 km) north from confluence with Río Chiquito, and 1.9 mi (3.0 km) north from Degetau Plaza, Ponce.		6/11/92	1135	13.3 (0.377)
50115450	Río Chiquito at Portugués, PR	Lat 18°04'11", long 66°37'00".	3.12 (8.09)	2/03/92	1342	0.87 (0.025)
		Hydrologic unit 21010004. At barrio Portugués, 2.1 mi (3.4 km) northwest from Jardines de Ponce, 1.7 mi (2.7 km) southwest from Pico Pinto, and 2.8 mi (4.5 km) north from Degetau Plaza, Ponce.		6/11/92	1230	2.11 (0.060)
50115600	Río Chiquito near Ponce, PR	Lat 18°02'37", long 66°36'31".	4.43 (11.5)	2/03/92	1414	2.40 (0.068)
		Hydrologic unit 21010004. At barrio Portugués, 0.6 mi (1.0 km) west from Jardines de Ponce, 0.8 mi (1.3 km) South from Cerro El Gato, and 2.1 mi (3.4 km) north from Degetau Plaza, Ponce.		6/11/92	1055	2.04 (0.058)
50116500	Río Portugués at Hwy 2 By-Pass at Ponce, PR	Lat 17°59'52", long 66°36'52".	20.5 (53.1)	2/03/92	0752	4.29 (0.121)
		Hydrologic unit 21010004. At bridge on Hwy 2 By-Pass, 1.1 mi (1.8 km) south of Degetau Plaza, and 2.0 mi (3.2 km) upstream from mouth.		6/11/92	0720	14.2 (0.402)
				6/29/92	1240	6.66 (0.189)
				7/07/92	1000	5.10 (0.144)
Río Matilde basin						
50116800	Río Cañas at Magueyes PR	Lat 18°04'26", long 66°39'07".	4.00 (10.3)	2/03/92	1002	5.27 (0.149)
		Hydrologic unit 21010004. At barrio Magueyes, 2.4 mi (3.9 km) southwest from Cerro del Diablo, 4.7 mi (7.6 km) northwest from Peñuelas, and (6.4 km) northwest from Ponce.		6/11/92	0940	4.85 (0.137)
50116970	Río Cañas downstream from Las Américas Ave., PR	Lat 18°00'37", long 66°38'26".	8.50 (22.0)	2/03/92	0846	7.59 (0.215)
		Hydrologic unit 21010004. 0.5 mi (0.8 km) upstream from confluence with Río Pastillo.		6/11/92	0840	12.2 (0.346)

DISCHARGE AT PARTIAL-RECORD STATIONS  
Low-flow partial-record stations--Continued

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STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi <sup>2</sup> (km <sup>2</sup> )	DATE	TIME	STREAM FLOWS ft <sup>3</sup> /s (m <sup>3</sup> /s)
50117800	Río Pastillo at Pastillo, PR	Lat 18°02'53", long 66°39'52". Hydrologic unit 21010004. Barrio Quebrada Limón at Hwy 502, 0.8 mi (1.3 km) northwest of Hwy's 502 and 132 inter- section, 0.9 mi (1.4 km) west of Magueyes and 3.1 mi (5.0 km) northwest from Ponce.	4.32 (11.2)	2/03/92 6/15/92	0915 1250	0.85 (0.024) 2.01 (0.057)
50118300	Río Pastillo near Ponce, PR	Lat 18°00'31", long 66°38'39". Hydrologic unit 21010004. Canas Urbano, on bridge, 0.7 mi (1.1 km) downstream from Jardines del Caribe and 1.1 mi (1.7 km) west of Escuela Dr. Pila, Ponce.	10.6 (27.6)	2/03/92 6/15/92	0900 1205	0.00 2.28 (0.064)
50119000	Río Matilde at Ponce, PR	Lat 17°59'53", long 66°38'06". Hydrologic unit 21010004. At Hwy 2, 1.1 mi (1.8 km) upstream from mouth.	20.5 (53.2)	2/03/92 6/15/92	0820 1120	7.14 (0.202) 13.1 (0.371)
50119200	Quebrada del Agua at Playa de Ponce, PR	Lat 17°59'13", long 66°38'22". Hydrologic unit 21010004. 700 ft (213 m) upstream from con- fluence with Río Matilde.	6.45 (16.7)	2/03/92 6/18/92	1415 1410	0.00 0.00
Río Tallaboa basin						
50120550	Río Tallaboa near Quebrada Ceiba, PR	Lat 18°04'18", long 66°42'03". Hydrologic unit 21010004. Barrio Quebrada Ceiba, on bridge, 0.06 mi (0.1 km) west from Hwy 391, 1.2 mi (2.0 km) north from Tallaboa Alta and 1.7 mi (2.7 km) northeast from Peñuelas Plaza.	8.41 (21.8)	2/03/92 6/15/92	1005 1345	4.62 (0.131) 11.1 (0.314)
50120700	Río Guayanés near Peñuelas, PR	Lat 18°04'03", long 66°43'36". Hydrologic unit 21010004. Barrio Jaguas, on Hwy 386, 0.2 mi (0.4 km) northeast from Hwy's 386 and 132 intersection, 0.6 mi (1.0 km) northeast from Peñuelas Plaza.	7.29 (18.9)	2/03/92 6/17/92	1110 0715	22.7 (0.643) 3.80 (0.108)
50121000	Río Tallaboa at Peñuelas, PR	Lat 18°03'02", long 66°43'19". Hydrologic unit 21010004. 350 ft (106.7 m) downstream from Hwy 132 bridge, 0.6 mi (1.0 km) south of Peñuelas.	24.2 (62.7)	2/03/92 6/15/92	1150 1435	21.4 (0.606) 20.4 (0.578)
50122000	Río Tallaboa at Tallaboa, PR	Lat 18°00'31", long 66°43'49". Hydrologic unit 21010004. At bridge at Hacienda Dolores, 700 ft (213 m) upstream from Hwy 127, 0.8 mi (1.3 km) north- west of Tallaboa, and 7.6 mi (12.2 km) west of Degetau Plaza, Ponce.	31.6 (81.7)	2/03/92 6/17/92	1245 0805	7.60 (0.215) 16.0 (0.453)
Río Macaná basin						
50122500	Río Macaná near Peñuelas, PR	Lat 18°03'40", long 66°46'12". Hydrologic unit 21010004. Barrio Macaná at Hwy's 131 and 132 intersection, 5.5 mi (8.8 km) northeast from Yauco, and 2.8 (4.5 km) northeast from Guayanilla Plaza.	2.77 (7.17)	2/05/92 6/17/92	0945 1050	0.31 (0.009) 1.24 (0.035)
50122900	Río Macaná at Magas Arriba, PR	Lat 18°01'00", long 66°45'57". Hydrologic unit 21010004. 1.8 mi (2.8 km) east of Guayanilla Plaza, 200 ft (60 m) upstream from bridge on Hwy 2, and 0.6 mi (1.0 km) upstream from mouth.	8.98 (23.2)	2/05/92 6/17/92	0830 0855	0.00 0.00

DISCHARGE AT PARTIAL-RECORD STATIONS  
Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi <sup>2</sup> (km <sup>2</sup> )	DATE	TIME	STREAM FLOWS ft <sup>3</sup> /s (m <sup>3</sup> /s)
Río Guayanilla basin						
50123100	Río Guayanilla at Pasto, PR	Lat 18°05'53", long 66°47'38". Hydrologic unit 21010004. At barrio Pasto, 1.8 mi (2.9 km) southeast from Pico Rodadero, 1.8 mi (2.9 km) west from Cerro El Peligro, and 5.2 mi (8.4 km) north from Guayanilla Plaza.	6.45 (16.7)	2/05/92 6/17/92	1025 1140	4.59 (0.130) 9.36 (0.265)
50124600	Río Guayanilla near Central Rufina, PR	Lat 18°01'00", long 66°47'01". Hydrologic unit 21010004. At Guayanilla, 1.2 mi (1.9 km) upstream from mouth, 0.8 mi (1.3 km) northeast from Central Rufina, and 0.6 mi (1.0 km) southeast from Guayanilla Plaza.	23.0 (59.5)	2/05/92 6/17/92	0845 0910	0.20 (0.006) 5.72 (0.162)
Río Yauco basin						
50125000	Río Yauco near Lago Lucchetti Damsite, PR	Lat 18°06'40", long 66°52'38". Hydrologic unit 21010004. Barrio Vegas, 300 ft (91 m) from mouth, 1.5 mi (2.4 km) northwest from spillway, and 5.4 mi (8.7 km) northwest from Yauco Plaza.	8.05 (20.8)	2/05/92 6/18/92	1310 1230	2.80 (0.079) 4.77 (0.135)
50125500	Río Naranjo near Lago Lucchetti Damsite, PR	Lat 18°06'20", long 66°51'37". Hydrologic unit 21010004. Barrio Naranjo at Hwy 128, 0.3 mi (0.5 km) from mouth and 0.9 mi (1.4 km) from spillway.	1.92 (4.97)	2/05/92 6/18/92	1240 1110	0.21 (0.006) 0.70 (0.020)
50125600	Quebrada Grande near Lago Lucchetti Damsite, PR	Lat 18°06'20", long 66°50'56". Hydrologic unit 21010004. Barrio Naranjo, 0.6 mi (1.0 km) west from Hacienda Roig, 0.9 mi (1.4 km) from mouth, and 1.3 mi (2.1 km) from spillway.	2.83 (7.33)	2/05/92 6/18/92	1210 1025	0.56 (0.016) 1.18 (0.033)
50125860	Río Duey at Duey, PR	Lat 18°05'44", long 66°50'06". Hydrologic unit 21010004. Barrio Duey, 0.8 mi (1.3 km) southeast from Hacienda Roig, 1.2 mi (1.9 km) east from Lago Lucchetti, and 4.1 mi (6.6 km) from Yauco Plaza.	4.55 (11.8)	2/05/92 6/17/92	1130 1240	2.55 (0.072) 3.35 (0.095)
Río Loco basin						
50128450	Quebrada Grande upstream from Lago Loco, PR	Lat 18°03'45", long 66°53'10". Hydrologic unit 21010004. Barrio Almácigo Alto, 800 ft (244 m) upstream from confluence with Río Loco, 1.2 mi (1.9 km) north from spillway, and 3.0 mi (4.8 km) northwest from Yauco Plaza.	2.72 (7.03)	2/06/92 6/18/92	0935 0910	0.66 (0.019) 1.23 (0.035)
50128500	Río Loco upstream from Lago Loco, PR	Lat 18°03'22", long 66°53'08". Hydrologic unit 21010004. At barrio Susúa Alta, 0.2 mi (0.3 km) upstream from Lago Loco, 1.9 mi (3.0 km) north- east from Cerro La Torre, and 5.2 mi (8.4 km) southeast from Sabana Grande Plaza.	7.66 (19.8)	2/06/92 6/18/92	0850 0830	1.30 (0.037) 3.66 (0.104)
50129200	Quebrada Susúa at Palomas, PR	Lat 18°01'19", long 66°52'28". Hydrologic unit 21010004. At bridge on Hwy 2, 0.5 mi (0.8 km) north of Palomas, and 1.9 mi (3.1 km) southwest of Yauco.	3.23 (8.37)	2/06/92 6/18/92	0800 0745	1.20 (0.034) 0.78 (0.022)

DISCHARGE AT PARTIAL-RECORD STATIONS  
Low-flow partial-record stations--Continued

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STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi <sup>2</sup> (km <sup>2</sup> )	DATE	TIME	STREAM FLOWS ft <sup>3</sup> /s (m <sup>3</sup> /s)
Río Guanajibo basin						
50130400	Río Grande near Sabana Grande, PR	Lat 18°05'53", long 66°56'18". Hydrologic unit 21010003. Barrio Rín at Hwy 364, 0.5 mi (0.8 km) northeast from Capilla del Pozo de la Virgen, and 1.8 mi (2.9 km) northeast from Sabana Grande Plaza.	6.45 (16.7)	2/03/92 6/15/92	0907 1009	0.42 (0.012) 1.31 (0.037)
50130500	Río Guanajibo at La Pica, PR	Lat 18°04'11", long 66°57'29". Hydrologic unit 21010003. Barrio Rayo at Hwy 2, 1.0 mi (1.6 km) north from Cerro de de los Bonelli, and 0.8 mi (1.3 km) southeast from Sabana Grande Plaza.	14.7 (38.2)	2/03/92 6/15/92	0821 0926	0.82 (0.023) 4.47 (0.126)
50130800	Río Flores near Sabana Grande, PR	Lat 18°04'02", long 66°58'25". Hydrologic unit 21010003. Barrio Santana at Hwy 2, 0.2 mi (0.3 km) east from Hwy's 2 and 363 intersection, and 0.9 mi (1.4 km) west from Sabana Grande Plaza.	1.98 (5.13)	2/03/92 6/15/92	0950 1054	0.05 (0.001) 0.51 (0.014)
50131010	Río Cruces near Sabana Grande, PR	Lat 18°04'54", long 66°58'37". Hydrologic unit 21010003. Barrio Santana at Hwy 2, 400 ft (122 m) west from Hwy 2 and 363 intersection, 1.1 mi (1.8 km) west from Sabana Grande Plaza.	4.68 (12.1)	2/03/92 6/15/92	1007 1118	1.40 (0.040) 1.86 (0.053)
50131800	Río Cupeyes near San Germán, PR	Lat 18°04'48", long 67°00'24". Hydrologic unit 21010003. Barrio Guamá, 0.2 mi (0.3 km) downstream from Hwy 2, and 2.5 mi (4.0 km) east from San Germán Plaza.	4.16 (10.8)	2/03/92 6/15/92	1045 1152	0.68 (0.019) 1.19 (0.034)
50132010	Río Guanajibo below San Germán, PR	Lat 18°05'28", long 67°02'38". Hydrologic unit 21010003. 0.5 mi (0.8 km) north of San Germán Plaza and 1500 ft (457m) downstream from Hwy 360 bridge.	36.1 (93.5)	2/04/92 6/17/92	1050 1043	4.45 (0.126) 10.3 (0.292)
50133000	Río Caín near San Germán, PR	Lat 18°06'06", long 67°02'26". Hydrologic unit 21010003. Barrio Caín, at Hwy 361, 600 ft (183 m) upstream from Hwy 2, and 1.3 mi (2.1 km) north from San Germán Plaza.	6.32 (16.4)	2/04/92 6/15/92	0730 1235	0.00  0.43 (0.012)
50133800	Río Duey near Rosario, PR	Lat 18°08'57", long 67°03'15". Hydrologic unit 21010003. Barrio Duey Alto, 200 ft (61 m) downstream from Hwy 348, 100 ft (30 m) downstream from conflu- ence with Río Nueve Pasos, and 2.0 mi (3.2 km) southeast from Rosario Plaza.	4.17 (10.8)	2/04/92 6/16/92	0852 0908	1.21 (0.034) 1.95 (0.055)
50134600	Río Hoconuco near San Germán, PR	Lat 18°07'08", long 67°04'27". Hydrologic unit 21010003. Barrio Hoconuco Bajo, 0.2 mi (0.3 km) downstream from Hwy 358, 200 ft upstream from confluence with Río Duey, and 3.2 mi (5.1 km) northwest from San Germán Plaza.	5.18 (13.4)	2/04/92 6/15/92 7/01/92	0830 1305 0930	0.00  0.34 (0.010) 0.13 (0.004)
50135000	Río Hoconuco (Duey) near San Germán, PR	Lat 18°07'10", long 67°04'48". Hydrologic unit 21010003. Barrio Duey Bajo, 200 ft (61 m) downstream from Hwy 2, and 3.4 mi (5.5 km) northwest from San Germán Plaza..	13.2 (34.3)	2/04/92 6/17/92	1145 1133	0.79 (0.022) 2.23 (0.063)

## DISCHARGE AT PARTIAL-RECORD STATIONS

## Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi <sup>2</sup> (km <sup>2</sup> )	DATE	TIME	STREAM FLOWS ft <sup>3</sup> /s (m <sup>3</sup> /s)
50135700	Río Maricao at Maricao, PR	Lat 18°11'22", long 66°59'37". Hydrologic unit 21010003. Barrio Maricao Afuera, at Hwy 357, 0.4 mi (0.6 km) east from Hacienda San Antonio, and 1.0 mi (1.6 km) northwest from Maricao Plaza.	3.80 (9.85)	2/04/92 6/16/92	0707 0718	3.43 (0.097) 4.24 (0.120)
50135800	Río Rosario at Las Vegas, PR	Lat 18°11'13", long 67°01'52". Hydrologic unit 21010003. Barrio Montoso, at Hwy 119, 0.1 mi (0.2 km) southeast from intersection with Hwy 105, and 3.6 (5.8 km) northeast from Rosario Plaza.	8.33 (21.6)	2/04/92 6/16/92	0802 0810	6.08 (0.172) 7.41 (0.210)
50136400	Río Rosario near Hormigueros, PR	Lat 18°09'36", long 67°05'08". Hydrologic unit 21010003. At Bridge on Hwy 348, 0.5 mi (0.8 km) Southwest of Rosario Plaza.	18.3 (47.4)	2/03/92 6/16/92	1210 1020	9.36 (0.265) 12.6 (0.357)
50136500	Río Rosario at Hwy 2 near Hormigueros, PR	Lat 18°07'35", long 67°05'39". Hydrologic unit 21010003. Barrio Benavente, at Hwy 2, 2.7 mi (4.3 km) southwest from Rosario, and 2.5 mi (4.0 km) southeast from Hormigueros Plaza.	22.8 (58.9)	2/04/92 6/16/92	1012 1132	7.24 (0.205) 16.4 (0.464)
50137800	Río Viejo near Cabo Rojo, PR	Lat 18°06'04", long 67°07'48". Hydrologic unit 21010003. Barrio Bajura, at Hwy 103, 1.0 mi (1.6 km) northeast from intersection with Hwy 102, and 1.4 mi (2.2 km) from Cabo Rojo Plaza.	12.3 (31.9)	2/05/92 6/17/92 7/01/92	1147 1317 1205	1.35 (0.038) 3.15 (0.089) 1.53 (0.043)
Quebrada Maga basin						
50138100	Quebrada Maga near Guanajibo, PR	Lat 18°09'18", long 67°08'07". Hydrologic unit 21010003. Barrio Guanajibo, 0.3 mi (0.5 km) southeast from Mayagüez Mall, and 1.2 mi (1.9 km) northwest from Hormigueros Plaza.	0.76 (1.96)	2/05/92 6/18/92	1115 1143	0.00 0.11 (0.003)
Río Hondo basin						
50138200	Río Hondo near Guanajibo, PR	Lat 18°09'45", long 67°09'00". Hydrologic unit 21010003. Barrio Guanajibo, at Hwy 114, 1.8 mi (2.9 km) east from Cerro Cornelia, and 2.0 mi (3.2 km) northwest from Hormigueros Plaza.	3.16 (8.18)	2/07/92 6/18/92	0805 1208	2.02 (0.057) 0.57 (0.016)
Quebrada Sábalo basin						
50138300	Quebrada Sábalo near Mayagüez, PR	Lat 18°10'47", long 67°08'58". Hydrologic unit 21010003. Barrio Sábalo, at Hwy 2R, 2.9 mi (4.7 km) northwest from Hormigueros, and 1.7 mi (2.7 km) southwest from Mayagüez Plaza.	2.47 (6.40)	2/07/92 6/18/92	0736 1224	0.64 (0.018) 1.02 (0.029)
Río Yagüez basin						
50138900	Río Yagüez at Balboa, PR	Lat 18°12'13", long 67°07'55". Hydrologic unit 21010003. 1200 ft (366 m) upstream from bridge on Balboa St. and 1.6 mi (2.6 km) upstream from mouth.	12.2 (31.6)	2/07/92 6/18/92	0657 1257	3.59 (0.102) 5.11 (0.145)

## DISCHARGE AT PARTIAL-RECORD STATIONS

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## Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi <sup>2</sup> (km <sup>2</sup> )	DATE	TIME	STREAM FLOWS ft <sup>3</sup> /s (m <sup>3</sup> /s)
Río Grande de Añasco basin						
50140300	Río Guilarte near Adjuntas, PR	Lat 18°10'58", long 66°46'09". Hydrologic unit 21010003.	2.62 (6.78)	2/04/92	0955	2.97 (0.084)
		Barrio Guilarte at Hwy 131, 0.4 mi (0.6 km) southwest from Hwy's 130 and 131 intersection,		6/16/92	0840	3.47 (0.098)
		and 4.3 mi (6.9 km) east from Castañer.		7/07/92	1300	2.34 (0.066)
50140800	Río Limani near Yahuecas, PR	Lat 18°12'01", long 66°47'50". Hydrologic unit 21010003.	7.38 (19.1)	2/04/92	1400	4.85 (0.137)
		Barrio Yahuecas, 200 ft (61 m) upstream with Río Guilarte, and 500 ft (152 m) southwest from Hwy's 129 and 135 intersection.		6/16/92	1035	8.37 (0.237)
				7/07/92	1445	5.57 (0.158)
50141400	Río Guayo at Guayo, PR	Lat 18°10'49", long 66°49'40". Hydrologic unit 21010003.	4.15 (10.7)	2/04/92	1250	2.47 (0.070)
		Barrio Guayo at Hwy 131, 1.0 mi (1.6 km) upstream from Lago Guayo, 0.4 mi (0.6 km) southeast from Castañer.		6/16/92	1130	4.95 (0.140)
				7/07/92	1530	3.64 (0.103)
50142000	Río Blanco at La Torre, PR	Lat 18°18'34", long 66°51'49". Hydrologic unit 21010003.	33.2 (86.0)	2/03/92	1115	4.24 (0.120)
		Barrio La Torre, at Hwy 128, 2.7 mi (4.3 km) northwest from Lago Guayo, and 4.5 mi (7.2 km) northwest from Castañer.		6/16/92	1253	19.7 (0.558)
50142100	Quebrada de Los Plátanos at Marisol, PR	Lat 18°15'41", long 66°51'22". Hydrologic unit 21010003.	0.57 (1.47)	2/03/92	1033	0.41 (0.012)
		Barrio Marisol, at Hwy 128, 0.3 mi (0.5 km) south from Hwy's 128 and 129 intersection.		6/16/92	1337	0.42 (0.012)
50142300	Río Prieto at Indiera Alta, PR	Lat 18°10'07", long 66°51'49". Hydrologic unit 21010003.	7.47 (19.3)	2/03/92	1230	4.41 (0.125)
		Barrio Indiera Alta, at Hwy 128, 2.3 mi (3.7 km) southwest from Lago Guayo, and 2.2 mi (3.5 km) southwest from Castañer.		6/16/92	1050	2.39 (0.068)
50142710	Río Prieto at Río Prieto, PR	Lat 18°12'06", long 66°53'05". Hydrologic unit 21010003.	15.1 (39.0)	2/03/92	1342	1.04 (0.029)
		Barrio Río Prieto, at Hwy 431, 3.7 mi (5.6 km) west from Lago Guayo, and 6.4 mi (10 km) northeast from Maricao Plaza.		6/16/92	1120	0.44 (0.012)
50142900	Río Prieto at Pezuela, PR	Lat 18°15'17", long 66°54'25". Hydrologic unit 21010003.	26.1 (67.7)	2/03/92	1522	10.4 (0.294)
		Barrio Pezuela, 400 ft (122 m) upstream from confluence with Río Grande de Añasco, and 3.4 mi (5.5 km) southwest from Lares Plaza.		6/16/92	1501	0.78 (0.022)
50143000	Río Grande de Añasco near Lares, PR	Lat 18°15'28", long 66°55'05". Hydrologic unit 21010003. At bridge on Hwy 124, 0.7 mi (1.1 km) from confluence with Río Blanco and Río Prieto, and 3.7 mi (6.0 km) southwest from Lares Plaza.	26.3 (68.1)	2/04/92	1420	16.2 (0.459)
				6/16/92	1419	143 (4.050)
50143104	Río Lajas near Maricao, PR	Lat 18°10'54", long 66°57'39". Hydrologic unit 21010003. Barrio Indiera Fría, at Hwy 105, 0.3 mi (0.5 km) upstream from confluence with Río Guaba, 0.7 mi (1.1 km) Maricao Plaza.	5.79 (15.0)	2/04/92	0700	2.79 (0.079)
				6/16/92	0837	6.25 (0.177)

## DISCHARGE AT PARTIAL-RECORD STATIONS

Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION	DRAINAGE AREA mi <sup>2</sup> (km <sup>2</sup> )	DATE	TIME	STREAM FLOWS ft <sup>3</sup> /s (m <sup>3</sup> /s)
		AND BASIN				
50143108	Río Guaba near Maricao, PR	Lat 18°11'02", long 66°57'30". Hydrologic unit 21010003. Barrio Bucarabones, at Hwy 105, 200 ft (61 m) upstream from confluence with Río Lajas, and 1.5 mi (2.4 km) from Maricao Plaza.	4.95 (12.8)	2/04/92	0750	3.44 (0.097)
				6/16/92	0925	2.75 (0.078)
50143150	Río Bucarabones near Las Marías, PR	Lat 18°13'27", long 66°56'41". Hydrologic unit 21010003. Barrio Bucarabones, 400 ft (122 m) upstream from confluence with Río Guaba, and 3.7 mi (5.6 km) northeast from Maricao Plaza.	9.19 (23.8)	2/04/92	1327	6.30 (0.178)
				6/16/92	1536	27.0 (0.765)
				7/08/92	1100	7.45 (0.211)
50143200	Río Guaba near Las Marías, PR	Lat 18°13'37", long 66°56'33". Hydrologic unit 21010003. Barrio Cerrote, at Hwy 124, 0.3 mi (0.5 km) downstream from confluence with Río Bucarabones, and 3.9 mi (6.3 km) northeast from Maricao Plaza.	25.4 (65.7)	2/04/92	1236	13.2 (0.374)
				6/16/92	1608	128 (3.625)
50143400	Quebrada Las Cañas at Perchas, PR	Lat 18°16'23", long 66°56'36". Hydrologic unit 21010003. Barrio Perchas No 2, at Hwy 434, 800 ft (244 m) upstream from confluence with Río Grande de Añasco, and 3.5 mi (5.6 km) from Las Marías Plaza.	3.08 (7.98)	2/06/92	1054	3.95 (0.112)
				6/17/92	0908	8.78 (0.249)
50143500	Río Mayagüecilla at Las Marías, PR	Lat 18°14'50", long 66°59'05". Hydrologic unit 21010003. Barrio Palma Escrita, at Hwy 124, 2.0 mi (3.2 km) upstream from confluence with Río Grande de Añasco, and 0.7 mi (1.1 km) southeast from Las Marías Plaza.	3.30 (8.54)	2/04/92	1136	1.79 (0.051)
				6/16/92	1654	8.31 (0.235)
50143800	Río Grande de Añasco near Las Marías, PR	Lat 18°16'41", long 66°58'48". Hydrologic unit 21010003. Barrio Guacio, at Hwy 119, 1.8 mi (2.9 km) northeast from Las Marías Plaza.	116 (299)	2/04/92	1030	53.7 (1.521)
				6/17/92	1016	594 (16.822)
50143900	Río Arenas at Las Marías, PR	Lat 18°15'10", long 66°59'57". Hydrologic unit 21010003. Barrio Maravillas, at Hwy 119, 0.5 mi (0.8 km) southwest from Las Marías Plaza.	2.79 (7.22)	2/04/92	0910	3.15 (0.089)
				6/17/92	0736	4.70 (0.133)
50144200	Quebrada Cerro Gordo near Cerro Gordo, PR	Lat 18°17'09", long 66°04'09". Hydrologic unit 21010003. Barrio Corcovada, 600 (183 m) upstream from confluence with Río Grande de Añasco, and 5.7 mi (9.2 km) from Las Marías, and 4.8 mi (7.7 km) east from Añasco Plaza.	2.66 (6.89)	2/05/92	1037	3.86 (0.109)
				6/18/92	0859	11.8 (0.334)
50144900	Río Humata near El Espino, PR	Lat 18°17'18", long 67°06'24". Hydrologic unit 21010003. Barrio Carreras, at Hwy 109, 0.3 mi (0.5 km) upstream from confluence with Río Grande de Añasco, and 2.4 mi (3.9 km) east from Añasco Plaza.	4.86 (12.6)	2/05/92	1140	2.95 (0.084)
				6/18/92	1007	4.40 (0.125)
50145000	Río Grande de Añasco at El Espino, PR	Lat 18°16'50", long 67°06'46". Hydrologic unit 21010003. Barrio Espino, at Hwy 406, 400 ft (249 m) east from intersection with Hwy 109, and 1.9 mi (3.1 km) from Añasco Plaza.	108 (280)-384	2/05/92	1234	81.5 (2.308)
				6/18/92	1045	356 (10.082)

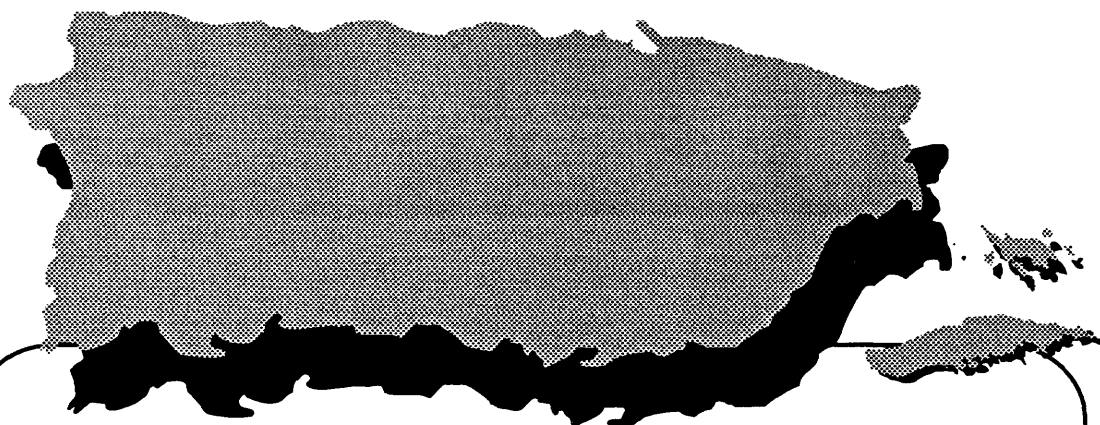


DISCHARGE AT PARTIAL-RECORD STATIONS  
Low-flow partial-record stations--Continued

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STATION NUMBER	STATION NAME	LOCATION	DRAINAGE AREA mi <sup>2</sup> (km <sup>2</sup> )	DATE	TIME	STREAM FLOWS ft <sup>3</sup> /s (m <sup>3</sup> /s)
		AND  BASIN				
50145400	Río Casei near Mayagüez, PR	Lat 18°15'18", long 67°04'48". Hydrologic unit 21010003. Barrio Legúisamo, at Hwy 108, 4.6 mi (7.4 km) northeast from Mayagüez, and 4.5 mi (7.2 km) southeast from Mayagüez Plaza.	8.17 (21.2)	2/05/92  6/17/92	0932  1340	5.75 (0.163) 31.5 (0.892)
50146000	Río Grande de Añasco at Añasco Arriba, PR	Lat 18°16'31", long 66°07'37". Hydrologic unit 21010003. 0.8 mi (1.2 km) south of Añasco and 3.0 mi (4.8 km) upstream from mouth.	161 (416)	2/05/92  6/18/92	1318  1207	89.1 (2.523) 434 (12.291)
50146002	Río Cañas at Río Cañas Arriba, PR	Lat 18°13'37", long 67°04'01". Hydrologic unit 21010003. Barrio Cañas Arriba, at Hwy 354, 0.2 mi (0.3 km) south from intersection with Hwy 355, and 5.1 mi (8.2 km) from Mayagüez Plaza.	3.58 (9.26)	2/05/92  6/17/92	0841  1155	1.91 (0.054) 2.95 (0.084)
50146005	Río Cañas at Río Cañas Abajo, PR	Lat 18°14'38", long 67°07'17". Hydrologic unit, 21010003. Barrio Río Cañas Abajo, at Hwy 108, and 3.1 mi (5.0 km) north- east from Mayagüez Plaza.	11.2 (29.1)	2/05/92  6/17/92	0735  1245	2.28 (0.064) 4.97 (0.141)
50146075	Río Dagüey near Añasco, PR	Lat 18°17'19", long 67°08'08". Hydrologic unit 21010003. Barrio Carreras, at Hwy 405, 100 ft (30 m) east from intresection with Hwy 404, and 0.5 mi (0.8 m) northeast from Mayagüez Plaza.	1.06 (2.75)	2/05/92  6/18/92	1410  1257	0.51 (0.014) 0.50 (0.014)
Río Grande basin						
50146200	Río Grande near Rincón, PR	Lat 18°22'06", long 67°13'56". Hydrologic unit 21010003. At bridge on Hwy 115, 1.2 mi (1.9 km) upstream from mouth, and 2.2 mi (3.5 km) northeast of Rincón.	2.83 (7.33)	2/06/92  6/19/92	0757  0621	0.59 (0.017) 2.71 (0.077)
Río Ingenio basin						
50146300	Río Ingenio at Jagüey, PR	Lat 18°20'36", long 67°11'52". Hydrologic unit 21010003. Barrio Jagüey, at unmunbered Hwy, 0.3 mi (0.5 km) from Hwy 411 intersection, and 2.7 mi (4.3 km) southwest from Aguada Plaza.	3.18 (8.22)	2/06/92  6/19/92	0915  0918	1.52 (0.043) 9.83 (0.278)
50146400	Río Ingenio near Aguada, PR	Lat 18°22'48", long 67°12'35". Hydrologic unit 21010003. At bridge on unimproved road, 0.3 mi (0.5 km) upstream from con- fluence with Río Culebra, 0.7 mi (1.1 km) upstream from mouth of Río Guayabo, and 1.4 mi (2.3 km) west of Aguada.	7.00 (18.1)	2/06/92  6/19/92  7/08/92	0720  0654  0825	2.34 (0.066) 5.55 (0.157) 3.17 (0.090)
Río Culebra basin						
50146600	Río Culebra near Aguada, PR	Lat 18°22'26", long 67°11'35". Hydrologic unit 21010003. At bridge on Hwy 411, 0.6 mi (1.0 km) south of Aguada, 1.5 mi (2.4 km) upstream from conflu- ence with Río Ingenio, and 1.9 mi (3.1 km) upstream from mouth of Río Guayabo.	3.75 (9.70)	2/06/92  6/19/92	0834  1015	1.22 (0.034) 3.53 (0.100)

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**Water-Quality at  
Parcial-Record Stations  
in Puerto Rico**

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

Water-quality partial-record stations are particcular sites where chemical-quality, biological and or sediment data are collected systematically over a period of years for use in hydrological analysis. The data are collected usually less than quarterly.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET)	SPR- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (IN)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
RIO GUAJATACA BASIN									
50010720	LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS, PR (LAT 18°22'05"N LONG 066°54'36"W)								
NOV 1991									
22...	0740	1.00	274	7.1	26.0	104	5.8	71	K12
MAR 1992									
17...	0840	1.00	254	7.6	26.5	19.0	11.6	150	230
JUL									
21...	0835	1.00	293	7.7	28.0	76.0	5.9	76	410
RIO GRANDE DE ARECIBO BASIN									
50025110	LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO, PR (LAT 18°19'15"N LONG 066°40'11"W)								
NOV 1991									
20...	0940	1.00	235	6.6	26.0	17.0	2.5	31	91
MAR 1992									
13...	0910	1.00	252	7.3	26.0	22.0	5.1	62	200
JUL									
24...	0855	1.00	231	6.9	28.5	26.0	7.1	84	70
RIO DE LA PLATA BASIN									
50039900	LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY, PR (LAT 18°05'04"N LONG 066°06'03"W)								
NOV 1991									
19...	0945	1.00	113	6.6	24.5	91.0	6.9	86	K7
MAR 1992									
18...	0940	1.00	116	6.5	23.5	71.0	7.5	93	36
JUL									
22...	0850	1.00	503	7.1	27.0	54.0	8.1	100	40
50044400	LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18°19'33"N LONG 066°12'28"W)								
NOV 1991									
18...	0845	1.00	280	6.9	25.5	12.0	6.8	82	270
MAR 1992									
12...	0850	1.00	388	7.9	26.0	37.0	6.1	75	K2
JUL									
16...	0850	1.00	374	7.7	29.0	18.0	7.6	97	K15
RIO GRANDE DE LOIZA BASIN									
50057500	LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18°16'51"N LONG 066°00'35"W)								
NOV 1991									
14...	0935	1.00	247	6.6	25.5	12.0	3.5	42	K1100
MAR 1992									
11...	1120	1.00	360	7.6	27.5	36.0	8.2	100	K1900
JUL									
17...	0945	1.00	315	6.7	30.0	43.0	4.9	64	84

K = non-ideal count

DATE	STREP- TOCOCCEI FECAL, KF AGAR (COLS.	ALKA- LINITY WAT WH TOT FET FIELD	RESIDUE TOTAL AT 105 DEG. C. SUS- PENDE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
	PER 100 ML)	MG/L AS CACO3	(MG/L)	AS N)	AS N)	AS N)	AS N)	AS N)

50010720 LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS, PR (LAT 18°22'05"N LONG 066°54'36"W)

RIO GRANDE DE ARECIBO BASIN--Continued

50025110 LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO, PR (LAT 18°19'15"N LONG 066°40'11"W)

RIO DE LA PLATA BASIN--Continued

50039900 LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY, PR (LAT 18°05'04"N LONG 066°06'03"W)

NOV 1991								
19...	40	--	2	--	<0.010	0.098	0.030	0.27
MAR 1992								
18...	41	--	1	--	<0.010	0.075	0.010	--
JUL								
22...	41	--	14	--	<0.010	<0.050	0.010	0.29

50044400 LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18°19'33"N LONG 066°12'28"W)

NOV 1991							
18...	410	--	2	0.430	0.050	0.480	0.010 0.59
MAR 1992							
12...	K2	--	<1	--	<0.010	<0.050	<0.010 --
JUL							
16...	--	--	26	--	<0.010	<0.050	0.030 0.47

## RIO GRANDE DE LOIZA BASIN--Continued

50057500 LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18°16'51"N LONG 066°00'35"W)

NOV 1991								
14...	K110	--	10	0.450	0.090	0.540	0.700	0.50
MAR 1992								
11...	K96	--	<1	0.320	0.100	0.420	1.30	0.90
JUL								
17...	50	--	20	0.320	0.130	0.450	0.850	0.45

K = non-ideal count

## ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	PLANK- TON BIOMASS ASH WT (MG/L)	PLANK- TON BIOMASS DRY WT (MG/L)
RIO GUAJATACA BASIN--Continued								
50010720	LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS, PR (LAT 18°22'05"N LONG 066°54'36"W)							
NOV 1991								
22...	0.40	--	--	0.030	4.50	<0.100	230	240
MAR 1992								
17...	0.50	--	--	0.020	10.0	1.40	280	290
JUL								
21...	<0.20	--	--	<0.010	7.60	0.100	240	250
RIO GRANDE DE ARECIBO BASIN--Continued								
50025110	LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO, PR (LAT 18°19'15"N LONG 066°40'11"W)							
NOV 1991								
20...	0.50	0.98	4.3	0.040	2.70	<0.100	250	250
MAR 1992								
13...	0.30	0.85	3.8	0.010	3.30	<0.100	250	260
JUL								
24...	0.60	0.92	4.1	0.050	13.0	0.600	250	260
RIO DE LA PLATA BASIN--Continued								
50039900	LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY, PR (LAT 18°05'04"N LONG 066°06'03"W)							
NOV 1991								
19...	0.30	0.40	1.8	0.010	16.0	4.00	220	220
MAR 1992								
18...	<0.20	--	--	<0.010	4.80	1.20	240	240
JUL								
22...	0.30	--	--	0.020	8.90	0.600	400	410
50044400	LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18°19'33"N LONG 066°12'28"W)							
NOV 1991								
18...	0.60	1.1	4.8	0.210	42.0	<0.100	230	240
MAR 1992								
12...	0.40	--	--	0.040	15.0	1.50	250	260
JUL								
16...	0.50	--	--	0.100	3.70	<0.100	250	260
RIO GRANDE DE LOIZA BASIN--Continued								
50057500	LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18°16'51"N LONG 066°00'35"W)							
NOV 1991								
14...	1.2	1.7	7.7	0.340	1.60	<0.100	270	280
MAR 1992								
11...	2.2	2.6	12	0.540	38.0	<0.100	260	260
JUL								
17...	1.3	1.7	7.7	0.390	2.10	0.700	260	260

## MISCELLANEOUS STATION ANALYSES

DATE	TIME	DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK (IN)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
RIO GUAJATACA BASIN										
50010790	LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W)									
NOV 1991										
22...	0820	1.00	<274	7.4	26.5	178	6.0	74	K2	K4
22...	0805	84.0	261	6.6	24.5	--	0.1	--	--	--
MAR 1992										
17...	0910	1.00	264	7.8	25.5	28.0	7.8	90	54	78
17...	0915	64.0	316	6.8	24.5	--	0.1	--	--	--
JUL										
21...	0920	1.00	284	8.3	28.5	60.0	8.0	100	76	10
21...	0925	63.0	324	7.1	26.5	--	2.0	21	--	--
RIO GRANDE DE ARECIBO BASIN										
50020050	LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W)									
NOV 1991										
21...	1045	1.00	156	6.8	23.0	54.0	6.5	81	20	27
21...	1040	79.0	183	6.2	20.5	--	0.1	2	--	--
MAR 1992										
16...	1055	1.00	157	7.1	24.0	44.0	7.9	100	92	76
16...	1050	67.0	159	6.4	20.0	--	0.1	1	--	--
JUL										
21...	1410	1.00	229	7.7	25.0	104	5.2	67	K300	K10
21...	1415	77.0	139	6.8	21.9	--	2.0	7	--	--
50027090	LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W)									
NOV 1991										
20...	1010	1.00	215	6.7	27.0	60.0	3.2	40	54	K11
20...	1000	64.0	225	6.3	25.5	--	0.1	1	--	--
MAR 1992										
13...	0945	1.00	250	8.1	26.0	64.0	7.9	97	20	74
13...	1010	72.0	218	6.5	24.0	--	0.1	72	--	--
JUL										
24...	0935	1.00	223	6.8	28.5	44.0	7.6	96	30	K1200
24...	0930	72.0	235	6.9	26.5	--	2.6	--	--	--
RIO DE LA PLATA BASIN										
50039950	LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W)									
NOV 1991										
19...	1035	1.00	113	6.7	24.5	65.0	7.1	89	44	46
19...	1030	62.0	178	6.0	22.5	--	0.1	1	--	--
MAR 1992										
18...	1030	1.00	114	7.3	23.5	80.0	8.4	100	K8	K18
18...	1025	49.0	72	6.0	21.0	--	0.0	--	--	--
JUL										
22...	0925	1.00	558	7.2	27.0	28.0	7.7	100	15	400
22...	0920	52.0	319	6.4	25.5	--	0.0	--	--	--
50044950	LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W)									
NOV 1991										
18...	0920	1.00	309	6.6	26.0	24.0	3.2	39	40	K680
18...	0910	68.0	305	5.8	24.0	--	0.1	1	--	--
MAR 1992										
12...	0930	1.00	306	7.7	<27.0	64.0	7.2	90	K4	14
12...	0935	48.0	158	6.7	22.5	--	0.1	--	--	--
JUL										
16...	0935	1.00	310	7.5	29.5	41.0	6.5	62	10	18
16...	0930	27.0	215	6.7	24.5	--	0.4	--	--	--
RIO GRANDE DE LOIZA BASIN										
50058800	LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W)									
NOV 1991										
14...	0855	1.00	140	6.2	25.5	4.00	2.7	33	600	970
14...	0840	40.0	113	5.8	24.0	--	0.3	4	--	--
MAR 1992										
11...	1030	1.00	338	7.2	27.0	41.0	5.6	70	10	30
11...	1040	39.0	337	7.0	26.0	--	0.1	--	--	--
JUL										
17...	0850	1.00	266	7.0	29.5	48.0	4.8	32	210	770
17...	0835	42.0	215	6.4	27.4	--	0.2	--	--	--

K = non-ideal count

## MISCELLANEOUS STATION ANALYSES

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB WAT TOT FLD MG/L AS CACO3	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)
RIO GUAJATACA BASIN--Continued									
50010790	LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W)								
NOV 1991									
22...	130	7	45	3.3	4.6	0.2	1.8	120	8.9
22...	140	6	49	3.4	5.3	0.2	2.0	130	8.5
MAR 1992									
17...	150	12	54	3.9	7.1	0.3	1.8	120	10
17...	130	6	45	3.7	6.2	0.2	1.8	140	13
JUL									
21...	120	9	42	3.6	5.5	0.2	1.8	120	10
21...	160	7	57	3.1	4.6	0.2	1.6	120	10
RIO GRANDE DE ARECIBO BASIN--Continued									
50020050	LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W)								
NOV 1991									
21...	68	0	19	4.9	6.5	0.3	1.7	50	<0.10
21...	63	0	18	4.5	6.0	0.3	1.3	43	3.1
MAR 1992									
16...	60	0	17	4.3	6.8	0.4	1.6	72	2.6
16...	61	0	17	4.5	6.0	0.3	1.5	70	2.7
JUL									
21...	62	0	17	4.7	5.9	0.3	1.3	80	3.1
21...	61	0	17	4.4	5.1	0.3	1.8	80	1.4
50027090	LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W)								
NOV 1991									
20...	--	3	<0.02	<0.01	<0.20	0.5	2.6	74	13
20...	80	6	22	6.2	11	0.5	2.4	75	13
MAR 1992									
13...	95	3	26	7.4	13	0.6	2.4	72	15
13...	80	2	22	6.1	10	0.5	2.9	70	12
JUL									
24...	76	2	20	6.3	10	0.5	2.3	80	12
24...	85	--	23	6.8	11	0.5	2.1	80	14
RIO DE LA PLATA BASIN--Continued									
50039950	LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W)								
NOV 1991									
19...	40	0	9.3	4.1	8.7	0.6	1.3	27	0.20
19...	32	0	6.7	3.7	9.2	0.7	1.5	30	2.9
MAR 1992									
18...	30	0	7.5	2.8	7.7	0.6	0.80	19	2.5
18...	30	0	6.4	3.5	8.5	0.7	0.90	30	2.6
JUL									
22...	29	0	6.2	3.3	6.0	0.5	0.90	38	0.70
22...	30	0	5.7	3.8	8.5	0.7	0.80	40	2.8
50044950	LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W)								
NOV 1991									
18...	120	0	28	11	14	0.6	3.2	76	4.3
18...	120	0	29	12	19	0.7	2.5	110	15
MAR 1992									
12...	120	6	29	11	17	0.7	2.9	89	13
12...	56	1	14	5.1	9.2	0.5	2.2	43	8.2
JUL									
16...	73	5	18	6.8	12	0.6	2.6	140	10
16...	100	1	25	10	16	0.7	2.4	150	17
RIO GRANDE DE LOIZA BASIN--Continued									
50058800	LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W)								
NOV 1991									
14...	32	7	8.9	2.4	7.9	0.6	2.8	71	7.3
14...	34	0	9.0	2.8	9.1	0.7	3.0	63	9.3
MAR 19									
11...	110	1	27	10	28	1	2.9	50	18
11...	110	1	27	10	27	1	3.0	44	18
JUL									
17...	78	3	18	7.0	18	0.9	2.4	98	12
17...	87	0	21	8.5	22	1	3.4	92	15



## MISCELLANEOUS STATION ANALYSES

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
RIO GUAJATACA BASIN--Continued									
50010790	LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W)								
NOV 1991									
22...	8.6	0.10	6.3	164	1	--	<0.010	<0.050	0.030
22...	7.4	0.10	6.3	153	--	--	--	--	--
MAR 1992									
17...	10	0.10	3.7	150	5	--	<0.010	<0.050	0.010
17...	10	0.10	7.2	182	--	--	--	--	--
JUL									
21...	11	0.10	1.3	142	50	--	<0.010	<0.050	<0.010
21...	9.6	0.10	4.9	181	--	--	--	--	--
RIO GRANDE DE ARECIBO BASIN--Continued									
50020050	LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W)								
NOV 1991									
21...	6.9	<0.10	17	100	3	--	<0.010	<0.050	0.040
21...	6.6	<0.10	20	--	--	--	--	--	--
MAR 1992									
16...	6.4	<0.10	12	88	2	--	<0.010	<0.050	0.020
16...	6.4	<0.10	17	94	--	--	--	--	--
JUL									
21...	6.3	<0.10	15	92	--	--	--	--	--
21...	7.2	<0.10	16	97	24	--	<0.010	<0.050	0.030
50027090	LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W)								
NOV 1991									
20...	10	0.10	21	137	1	0.320	0.040	0.360	0.070
20...	11	0.10	22	--	--	--	--	--	--
MAR 1992									
13...	16	0.20	21	154	<1	0.280	0.020	0.300	<0.010
13...	13	0.10	19	126	--	--	--	--	--
JUL									
24...	13	0.10	21	138	11	0.210	0.010	0.220	0.010
24...	11	<0.10	20	124	--	--	--	--	--
RIO DE LA PLATA BASIN--Continued									
50039950	LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W)								
NOV 1991									
19...	9.9	<0.10	19	74	9	--	<0.010	<0.050	0.030
19...	10	0.20	20	87	--	--	--	--	--
MAR 1992									
18...	9.3	<0.10	17	69	<1	--	<0.010	0.064	<0.010
18...	8.0	<0.10	15	60	--	--	--	--	--
JUL									
22...	9.8	<0.10	15	67	14	--	<0.010	<0.050	0.010
22...	7.9	<0.10	11	58	--	--	--	--	--
50044950	LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W)								
NOV 1991									
18...	23	<0.10	19	193	1	--	<0.010	<0.050	0.020
18...	19	0.10	20	178	--	--	--	--	--
MAR 1992									
12...	21	0.20	14	176	<1	--	<0.010	<0.050	<0.010
12...	12	0.10	14	91	--	--	--	--	--
JUL									
16...	23	0.20	16	172	18	--	<0.010	<0.050	0.030
16...	15	0.10	15	121	--	--	--	--	--
RIO GRANDE DE LOIZA BASIN--Continued									
50058800	LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W)								
NOV 1991									
14...	11	<0.10	15	80	2	0.430	0.250	0.680	0.140
14...	9.1	<0.10	11	65	--	--	--	--	--
MAR 1992									
11...	29	0.20	21	200	5	0.170	0.040	0.210	0.050
11...	28	0.10	22	200	--	--	--	--	--
JUL									
17...	21	0.20	23	148	20	0.120	0.140	0.260	0.040
17...	20	0.1	25	170	--	--	--	--	--

### MISCELLANEOUS STATION ANALYSES

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHORUS TOTAL (MG/L AS P)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	PLANK- TON BIOMASS ASH WT (MG/L)	PLANK- TON BIOMASS DRY WT (MG/L)
	RIO GUAJATACA BASIN--Continued								
50010790 LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W)									
NOV 1991									
22...	0.27	0.30	--	--	0.020	0.700	<0.100	2.0	250
22...	--	--	--	--	--	--	--	--	--
MAR 1992									
17...	0.29	0.30	--	--	<0.010	2.90	<0.100	400	410
17...	--	--	--	--	--	--	--	--	--
JUL									
21...	--	0.40	--	--	<0.010	3.50	0.800	250	250
21...	--	--	--	--	--	--	--	--	--
RIO GRANDE DE ARECIBO BASIN--Continued									
50020050 LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W)									
NOV 1991									
21...	0.36	0.40	--	--	0.010	2.90	<0.100	240	250
21...	--	--	--	--	--	--	--	--	--
MAR 1992									
16...	0.18	0.20	--	--	<0.010	2.80	<0.100	250	250
16...	--	--	--	--	--	--	--	--	--
JUL									
21...	--	<0.20	--	--	<0.010	8.30	0.700	240	240
21...	--	--	--	--	--	--	--	--	--
50027090 LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W)									
NOV 1991									
20...	0.33	0.40	0.76	3.4	0.030	4.10	<0.100	240	250
20...	--	--	--	--	--	--	--	--	--
MAR 1992									
13...	--	0.20	0.50	2.2	0.030	5.10	<0.100	250	260
13...	--	--	--	--	--	--	--	--	--
JUL									
24...	0.29	0.30	0.52	2.3	0.010	7.50	0.400	250	260
24...	--	--	--	--	--	--	--	--	--
RIO DE LA PLATA BASIN--Continued									
50039950 LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W)									
NOV 1991									
19...	0.37	0.40	--	--	0.010	31.0	8.40	210	210
19...	--	--	--	--	--	--	--	--	--
MAR 1992									
18...	--	<0.20	--	--	<0.010	4.60	1.20	250	260
18...	--	--	--	--	--	--	--	--	--
JUL									
22...	0.19	0.20	--	--	<0.010	4.40	1.00	410	420
22...	--	--	--	--	--	--	--	--	--
50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W)									
NOV 1991									
18...	0.38	0.40	--	--	0.070	4.10	<0.100	250	250
18...	--	--	--	--	--	--	--	--	--
MAR 1992									
12...	--	0.30	--	--	<0.010	3.10	<0.100	240	240
12...	--	--	--	--	--	--	--	--	--
JUL									
16...	0.27	0.30	--	--	<0.010	1.20	0.300	250	260
16...	--	--	--	--	--	--	--	--	--
RIO GRANDE DE LOIZA BASIN--Continued									
50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W)									
NOV 1991									
14...	0.66	0.80	1.5	6.6	0.210	3.40	<0.100	280	290
14...	--	--	--	--	--	--	--	--	--
MAR 1992									
11...	0.45	0.50	0.71	3.1	0.120	15.0	<0.100	260	260
11...	--	--	--	--	--	--	--	--	--
JUL									
17...	0.56	0.60	0.86	3.8	0.160	5.60	<0.100	260	270
17...	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS  
WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

477

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
RIO GUAJATACA BASIN--Continued										
50010790		LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W)								
JUL 21...	0920	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010
RIO GRANDE DE ARECIBO BASIN--Continued										
50020050		LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W)								
JUL 21...	1410	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010
50027090		LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W)								
JUL 24...	0935	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010
RIO DE LA PLATA BASIN--Continued										
50044950		LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066° 01W)								
JUL 16...	0935	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010
RIO GRANDE DE LOIZA BASIN--Continued										
50058800		LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W)								
JUL 17...	0850	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	0.02	<0.010	<0.010

## PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

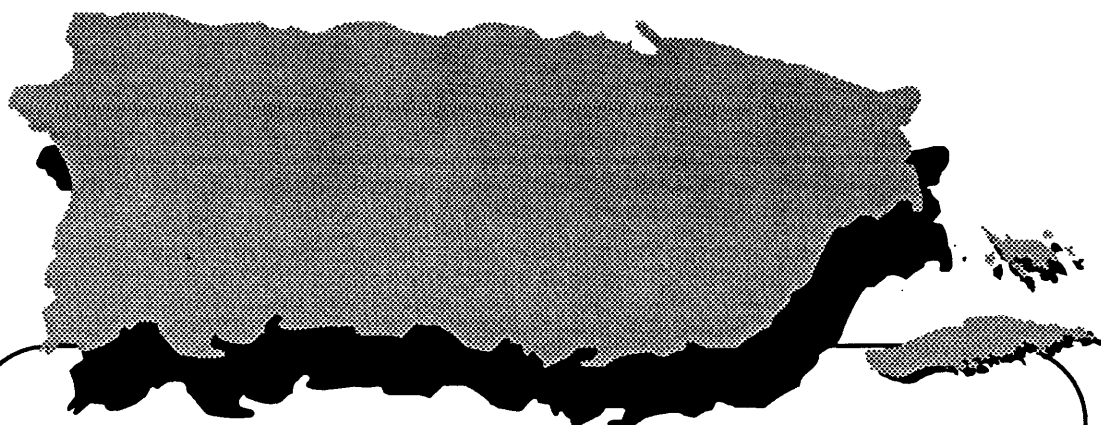
DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
RIO GUAJATACA BASIN--Continued									
50010790	LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W)								
JUL 21...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
RIO GRANDE DE ARECIBO BASIN--Continued									
50020050	LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W)								
JUL 21...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
50027090	LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W)								
JUL 24...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
RIO DE LA PLATA BASIN--Continued									
50044950	LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066° 01W)								
JUL 16...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
RIO GRANDE DE LOIZA BASIN--Continued									
50058800	LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W)								
JUL 17...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS  
WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

479

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
RIO GUAJATACA BASIN--Continued									
50010790	LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W)								
JUL 21...	<0.01	<0.10	<0.1	<1	<0.01	0.06	<0.01	<0.01	<0.01
RIO GRANDE DE ARECIBO BASIN--Continued									
50020050	LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W)								
JUL 21...	<0.01	<0.10	<0.1	<1	<0.01	0.06	<0.01	<0.01	<0.01
50027090	LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W)								
JUL 24...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01
RIO DE LA PLATA BASIN--Continued									
50044950	LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066° 01W)								
JUL 16...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01
RIO GRANDE DE LOIZA BASIN--Continued									
50058800	LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W)								
JUL 17...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01

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## **Ground-Water Records for Puerto Rico**

## GROUND-WATER LEVELS

## RIO GUAJATACA BASIN

182422067015100. Local number, 165.

LOCATION.--Lat 18°24'22", long 67°01'51", Hydrologic Unit 21010003, 5.60 mi northeast of Moca plaza, 4.70 mi southeast of Aguadilla U.S. Naval Reservation Radio Antenna, and 1.63 mi northwest of La Virgen del Rosario Church.

Owner: P.R. Aqueduct and Sewer Authority, Name: Saltos # 1 (Mateo Pérez).

AQUIFER.--Cibao Formation, Aguada Limestone.

WELL CHARACTERISTICS.--Drilled production water-table well, diameter 16 in (0.40 m), cased 16 in (0.40 m) 0-40 ft (0-12.2 m), cased 12 in (0.30 m) 40-200 ft (12.2-61.0 m). Depth 200 ft (61.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 689 ft (210 m) above mean sea level.

Measuring point: Hole on pump base, 0.80 ft (0.24 m) above land-surface datum. Prior to November 1985, hole on top of pump base, 1.00 ft (0.30 m) above land-surface datum.

REMARKS.--Recording observation well. Formerly published as 182421067015000.

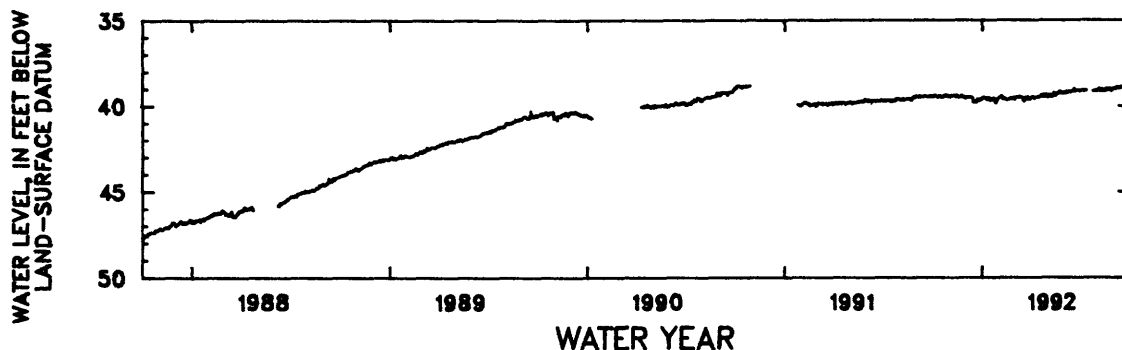
PERIOD OF RECORD.--January 1982 to March 1985, November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 38.75 ft (11.8 m) below land-surface datum, Sept. 23, 26, 1992; lowest water level measured, 70.60 ft (21.52 m) below land-surface datum, June 18, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39.39	39.46	39.55	39.60	39.52	39.63	39.52	39.42	39.21	39.11	39.10	38.97
2	39.42	39.48	39.56	39.50	39.51	39.58	39.49	39.48	39.19	39.08	39.10	38.97
3	39.45	39.47	39.51	39.52	39.50	39.51	39.46	39.41	39.26	39.08	39.10	38.96
4	39.44	39.43	39.48	39.50	39.51	39.48	39.47	39.35	39.24	39.08	38.99	38.98
5	39.39	39.40	39.48	39.50	39.47	39.49	39.49	39.35	39.17	39.07	39.11	38.96
6	39.38	39.38	39.48	39.51	39.42	39.46	39.52	39.34	39.15	39.09	39.11	38.90
7	39.39	39.40	39.47	39.53	39.44	39.48	39.57	39.40	39.23	39.11	39.09	38.90
8	39.41	39.41	39.48	39.58	39.53	39.48	39.49	39.41	39.20	39.11	39.10	38.90
9	39.46	39.39	39.47	39.62	39.62	39.48	39.49	39.45	39.14	39.08	39.08	38.91
10	39.46	39.39	39.47	39.54	39.54	39.46	39.49	39.43	39.15	39.09	39.02	38.94
11	39.44	39.39	39.49	39.53	39.57	39.45	39.47	39.36	39.13	39.09	39.09	38.94
12	39.46	39.39	39.50	39.64	39.60	39.47	39.50	39.31	39.15	---	39.12	38.94
13	39.46	39.36	39.51	39.59	39.63	39.50	39.50	39.24	39.17	---	39.13	38.91
14	39.44	39.43	39.50	39.53	39.59	39.50	39.46	39.25	39.15	---	39.12	38.87
15	39.40	39.46	39.59	39.55	39.63	39.50	39.44	39.28	39.13	---	39.03	38.88
16	39.39	39.44	39.79	39.61	39.64	39.52	39.46	39.43	39.12	---	39.01	38.89
17	39.45	39.41	39.78	39.67	39.64	39.67	39.47	39.32	39.11	---	39.09	38.89
18	39.49	39.44	39.77	39.64	39.62	39.73	39.45	39.30	39.10	---	39.10	38.88
19	39.45	39.49	39.74	39.62	39.63	39.67	39.40	39.26	39.00	---	38.98	38.88
20	39.44	39.47	39.78	39.59	39.61	39.51	39.37	39.27	39.09	---	39.03	38.82
21	39.47	39.46	39.80	39.56	39.59	39.49	39.36	39.26	39.14	---	39.04	38.88
22	39.46	39.47	39.74	39.55	39.56	39.58	39.45	39.22	39.09	---	38.99	38.86
23	39.39	39.45	39.65	39.57	39.53	39.55	39.45	39.19	39.08	---	38.98	38.82
24	39.39	39.44	39.60	39.64	39.58	39.60	39.36	39.15	39.09	39.12	38.98	38.83
25	39.38	39.39	39.66	39.63	39.54	39.51	39.33	39.24	39.08	39.12	39.02	38.84
26	39.34	39.42	39.69	39.64	39.54	39.49	39.39	39.25	39.09	39.10	39.10	38.83
27	39.35	39.48	39.69	39.82	39.55	39.55	39.44	39.24	39.09	39.12	39.11	38.82
28	39.41	39.49	39.63	39.76	39.60	39.62	39.39	39.19	39.09	39.11	39.10	38.85
29	39.38	39.49	39.58	39.68	39.52	39.61	39.33	39.23	39.10	39.09	39.01	38.88
30	39.36	39.52	39.61	39.61	---	39.57	39.39	39.26	39.13	39.10	38.98	38.83
31	39.43	---	39.63	39.54	---	39.53	---	39.23	---	39.09	38.97	---
MEAN	39.42	39.44	39.60	39.59	39.56	39.54	39.45	39.31	39.14	39.10	39.06	38.89

WTR YR 1992 MEAN 39.35 HIGHEST 38.75 SEPT. 23, 26, 1992 LOW 39.90 DEC. 15, 1991





## GROUND-WATER LEVELS

## RIO GUAJATACA BASIN

182647066552400. Local number, 202.

LOCATION.--Lat 18°26'47", long 66°55'24", Hydrologic Unit 21010002, 2.22 mi southeast of Quebradillas plaza, 1.29 mi north of Escuela José de Diego, and 1.99 mi northwest of El Calvario Church. Owner: P.R. Aqueduct and Sewer Authority. Name: Carmelo Barreto Garcia well.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-296 ft (0-90.2 m), diameter 13 in (0.33 m), cased 13 in (0.33 m) 0-550 ft (0-167.6 m), perforated 270-529 ft (82.3-161.2 m). Depth 550 ft (167.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 475 ft (145 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.50 ft (0.46 m) above land-surface datum. Prior July 25, 1986, top of shelter floor, 3.30 ft (1.00 m) above land-surface datum.

REMARKS.--Recording observation well.

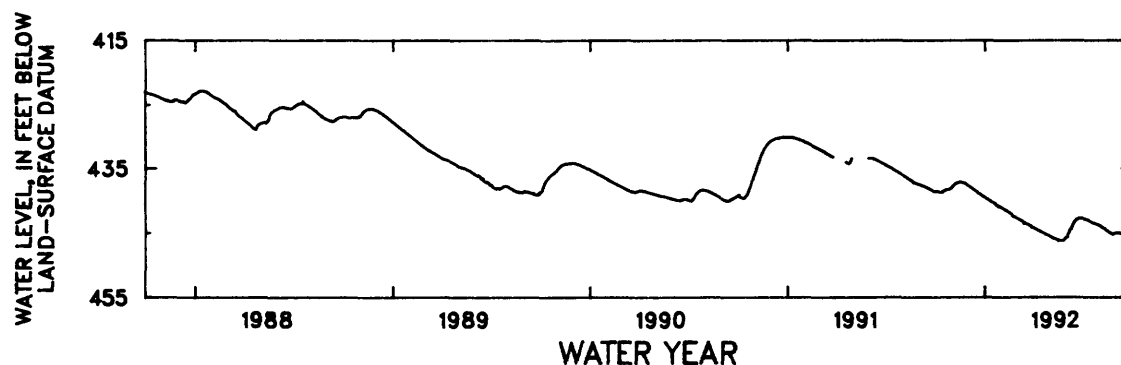
PERIOD OF RECORD.--November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 409.17 ft (124.71 m) below land-surface datum, Sept. 25, 1986; lowest water level recorded, 452.80 ft (138.01 m) below land-surface datum, June 26, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	438.60	437.90	437.65	439.52	441.12	442.75	444.28	445.63	445.69	442.78	443.95	445.01
2	438.58	437.82	437.71	439.57	441.17	442.79	444.33	445.67	445.67	442.80	444.00	445.00
3	438.59	437.71	437.75	439.65	441.22	442.84	444.35	445.69	445.09	442.83	444.06	444.99
4	438.59	437.61	437.81	439.68	441.27	442.89	444.43	445.73	444.94	442.86	444.09	445.01
5	438.59	437.52	437.88	439.74	441.31	442.95	444.47	445.82	444.78	442.89	444.18	445.03
6	438.62	437.43	437.93	439.80	441.37	442.99	444.51	445.85	444.63	442.93	444.22	445.05
7	438.64	437.38	437.99	439.88	441.44	443.04	444.56	445.90	444.45	442.95	444.28	445.11
8	438.67	437.32	438.04	439.92	441.49	443.11	444.58	445.91	444.38	442.99	444.33	445.09
9	438.72	437.27	438.11	439.97	441.53	443.16	444.65	445.94	444.36	443.02	444.37	445.11
10	438.73	437.23	438.18	439.98	441.57	443.18	444.69	445.97	443.95	443.07	444.43	445.11
11	438.74	437.17	438.27	440.05	441.66	443.26	444.72	446.01	443.76	443.10	444.53	445.14
12	438.73	437.16	438.32	440.19	441.70	443.36	444.77	446.04	443.62	443.17	444.60	445.15
13	438.71	437.12	438.38	440.21	441.74	443.58	444.81	446.09	443.50	443.21	444.66	445.17
14	438.64	437.11	438.43	440.18	441.82	443.40	444.86	446.14	443.34	443.25	444.70	445.19
15	438.57	437.10	438.50	440.23	441.86	443.45	444.92	446.16	443.24	443.29	444.75	445.22
16	438.49	437.08	438.57	440.26	441.91	443.51	444.95	446.27	443.14	443.36	444.82	445.23
17	438.46	437.08	438.64	440.31	441.96	443.58	445.01	446.18	443.06	443.38	444.90	445.24
18	438.39	437.10	438.70	440.37	442.02	443.61	445.04	446.20	442.96	443.42	444.94	445.27
19	438.34	437.13	438.77	440.41	442.07	443.64	445.08	446.23	442.90	443.47	444.97	445.28
20	438.30	437.14	438.86	440.45	442.14	443.67	445.14	446.25	442.85	443.51	445.03	445.30
21	438.29	437.17	438.91	440.67	442.38	443.71	445.19	446.25	442.84	443.53	445.10	445.32
22	438.25	437.20	438.94	440.66	442.38	443.79	445.25	446.28	442.77	443.56	445.14	445.35
23	438.24	437.22	439.01	440.67	442.51	443.82	445.27	446.27	442.74	443.60	445.19	---
24	438.22	437.26	439.06	440.87	442.54	443.88	445.28	446.25	442.74	443.62	445.26	---
25	438.23	437.29	439.13	440.76	442.49	443.93	445.33	446.24	442.71	443.66	445.23	445.38
26	438.18	437.35	439.19	440.96	442.53	443.96	445.38	446.16	442.71	443.69	445.16	445.36
27	438.16	437.42	439.25	440.88	442.59	444.15	445.42	446.04	442.72	443.74	445.13	445.34
28	438.14	437.47	439.30	440.94	442.65	444.09	445.46	445.91	442.72	443.77	445.07	445.31
29	438.09	437.53	439.35	440.94	442.70	444.14	445.51	445.82	442.75	443.80	445.05	445.27
30	438.02	437.59	439.40	441.04	---	444.17	445.58	445.72	442.77	443.86	445.02	445.19
31	437.96	---	439.48	441.09	---	444.25	---	445.70	---	443.89	444.99	---
MEAN	438.43	437.33	438.56	440.32	441.90	443.50	444.93	446.01	443.59	443.32	444.71	445.19

WTR YR 1992 MEAN 442.30 HIGHEST 437.02 NOV. 17, 1991 LOWEST 446.31 MAY 23, 1992



## GROUND-WATER LEVELS

## RIO GRANDE DE ARECIBO BASIN

182737066370900. Local number, 204.

LOCATION.--Lat 18°27'37", long 66°37'09", Hydrologic Unit 21010002, 5.26 mi west of Barceloneta plaza, 1.58 mi north of Hwy 2 km 63.7, and 3.67 mi southwest of Escuela Agustín Balseiro. Owner: Sucesión Marquez, Name: Gilberto Rivera well.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Abandoned unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 48.0 ft (14.63 m) above mean sea level.

Measuring point: Air hole on pump base, 0.50 ft (0.15 m) above land-surface datum.

REMARKS.--Recording observation well.

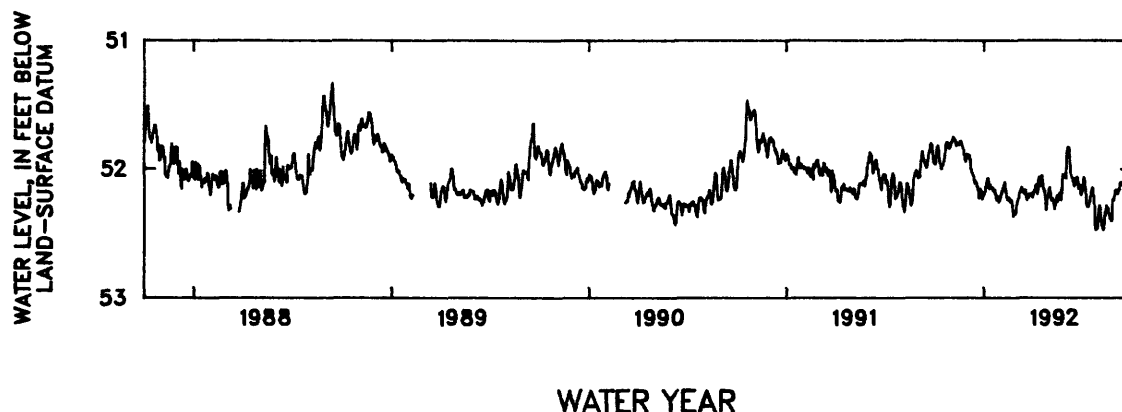
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 50.00 ft (15.24 m) below land-surface datum, May 14, 1986; lowest water level recorded, 52.52 ft (16.0 m) below land-surface datum, June 9-10, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51.95	51.79	51.88	52.19	52.21	52.27	52.18	52.14	51.99	52.14	52.28	52.17
2	51.96	51.79	51.90	52.18	52.17	52.26	52.17	52.18	51.88	52.10	52.30	52.16
3	51.96	51.78	51.89	52.17	52.18	52.24	52.17	52.22	51.83	52.06	52.37	52.19
4	51.94	51.76	51.89	52.13	52.16	52.23	52.15	52.24	51.83	52.08	52.39	52.18
5	51.90	51.75	51.89	52.12	52.14	52.22	52.12	52.23	51.83	52.10	52.43	52.16
6	51.83	51.76	51.92	52.09	52.14	52.18	52.12	52.23	51.85	52.16	52.44	52.16
7	51.83	51.77	51.95	52.07	52.11	52.17	52.17	52.23	51.90	52.20	52.45	52.12
8	51.82	51.77	52.00	52.07	52.10	52.16	52.19	52.25	51.96	52.28	52.47	52.10
9	51.86	51.78	52.02	52.10	52.16	52.15	52.15	52.27	52.03	52.29	52.46	52.11
10	51.91	51.81	52.03	52.15	52.18	52.14	52.08	52.31	52.06	52.29	52.42	52.12
11	51.94	51.82	52.03	52.14	52.22	52.16	52.06	52.28	52.07	52.29	52.33	52.10
12	51.96	51.80	52.06	52.12	52.22	52.18	52.10	52.27	52.07	52.28	52.36	52.11
13	51.97	51.81	52.08	52.14	52.24	52.18	52.13	52.25	52.09	52.26	52.30	52.13
14	52.00	51.80	52.11	52.15	52.24	52.18	52.11	52.23	52.11	52.25	52.28	52.13
15	52.00	51.80	52.09	52.14	52.23	52.19	52.06	52.20	52.13	52.21	52.33	52.15
16	51.97	51.81	52.10	52.14	52.22	52.17	52.05	52.25	52.12	52.19	52.30	52.15
17	51.97	51.80	52.10	52.15	52.24	52.16	52.08	52.23	52.08	52.16	52.30	52.16
18	51.96	51.78	52.12	52.17	52.26	52.19	52.12	52.23	52.07	52.15	52.34	52.15
19	51.94	51.78	52.13	52.17	52.25	52.23	52.15	52.22	52.09	52.14	52.35	52.15
20	51.91	51.79	52.16	52.18	52.24	52.24	52.17	52.18	52.06	52.19	52.38	52.07
21	51.87	51.81	52.16	52.16	52.25	52.21	52.17	52.20	52.07	52.20	52.38	52.04
22	51.83	51.82	52.23	52.20	52.28	52.22	52.19	52.24	52.12	52.27	52.39	52.03
23	51.80	51.84	52.20	52.22	52.32	52.22	52.24	52.18	52.15	52.29	52.40	52.04
24	51.79	51.85	52.16	52.24	52.37	52.19	52.32	52.09	52.13	52.46	52.40	52.06
25	51.79	51.89	52.15	52.23	52.34	52.19	52.31	52.05	52.12	52.47	52.23	51.95
26	51.80	51.89	52.17	52.21	52.35	52.20	52.24	52.04	52.15	52.47	52.24	51.92
27	51.81	51.92	52.21	52.22	52.35	52.19	52.22	52.05	52.19	52.46	52.24	51.92
28	51.84	51.94	52.23	52.26	52.34	52.19	52.21	52.06	52.20	52.46	52.22	51.97
29	51.83	51.92	52.23	52.24	52.33	52.20	52.18	52.04	52.18	52.41	52.19	52.03
30	51.83	51.91	52.19	52.24	---	52.22	52.15	52.05	52.16	52.34	52.16	52.08
31	51.82	---	52.20	52.22	---	52.20	---	52.07	---	52.30	52.16	---
MEAN	51.89	51.82	52.08	52.17	52.24	52.20	52.16	52.18	52.05	52.26	52.33	52.09

WTR YR 1992 MEAN 52.12 HIGHEST 51.72 NOV. 1, 1991 LOWEST 52.50 JULY 28, 1992



## GROUND-WATER LEVELS

485

## RIO GRANDE DE MANATI BASIN

182757066325600. Local number, 206.

LOCATION.--Lat 18°27'57", long 66°32'56", Hydrologic Unit 21010002, 0.84 mi northwest of Barceloneta plaza, 0.64 mi west of Central Plazuela, and 1.96 mi southeast of Escuela Agustín Balseiro. Owner: P.R. Department of Agriculture, Name: Plazuela No. 2.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m), cased 16 in (0.41 m) 0-85 ft (0-25.9 m), open hole 85-101 ft (25.9-30.8 m). Depth 101 ft (30.8 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 7.0 ft (2.1 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.30 ft (0.40 m) above land-surface datum.

REMARKS.--Recording observation well.

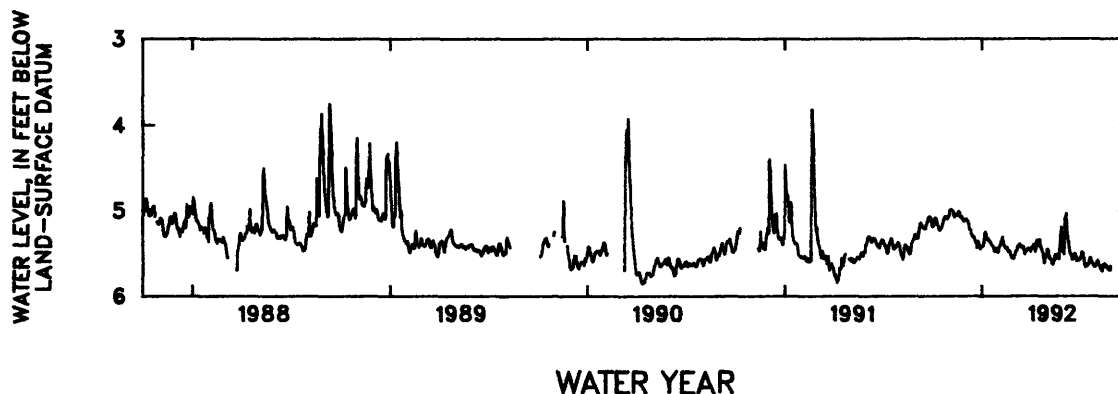
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.75 ft (1.14 m) below land-surface datum, Sept. 11, 1988; lowest water level recorded, 5.89 ft (1.80 m) below land-surface datum, Apr. 11-12, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.19	5.00	5.10	5.42	5.45	5.52	5.44	5.45	5.36	5.55	5.58	---
2	5.19	4.99	5.11	5.42	5.42	5.51	5.43	5.47	5.08	5.53	5.60	---
3	5.18	4.99	5.10	5.41	5.41	5.48	5.44	5.52	5.08	5.48	5.64	---
4	5.17	4.99	5.11	5.38	5.39	5.47	5.42	5.56	5.03	5.49	5.64	---
5	5.16	4.99	5.12	5.37	5.36	5.46	5.40	5.56	5.10	5.50	5.66	---
6	5.08	5.00	5.14	5.28	5.37	5.44	5.41	5.56	5.25	5.55	5.68	---
7	5.09	5.01	5.16	5.25	5.34	5.42	5.45	5.56	5.31	5.60	5.68	---
8	5.09	5.02	5.20	5.26	5.31	5.41	5.48	5.59	5.36	5.64	5.70	---
9	5.12	5.06	5.22	5.29	5.36	5.40	5.44	5.62	5.42	5.66	5.71	---
10	5.16	5.06	5.23	5.34	5.39	5.39	5.37	5.63	5.47	5.65	5.67	---
11	5.18	5.08	5.23	5.34	5.42	5.40	5.35	5.62	5.50	5.65	5.63	---
12	5.19	5.05	5.27	5.33	5.42	5.42	5.37	5.60	5.50	5.65	5.65	---
13	5.22	5.06	5.29	5.33	5.44	5.43	5.41	5.57	5.52	5.64	5.63	---
14	5.23	5.04	5.31	5.36	5.45	5.43	5.40	5.55	5.54	5.63	5.62	---
15	5.23	5.05	5.30	5.36	5.45	5.43	5.35	5.51	5.57	5.63	5.65	---
16	5.21	5.06	5.31	5.36	5.43	5.42	5.34	5.55	5.57	5.61	5.64	---
17	5.20	5.04	5.31	5.37	5.45	5.42	5.37	5.56	5.53	5.57	5.64	---
18	5.19	5.01	5.34	5.40	5.48	5.46	5.42	5.56	5.52	5.55	5.67	---
19	5.18	5.02	5.36	5.40	5.47	5.50	5.44	5.56	5.52	5.55	5.67	---
20	5.15	5.04	5.38	5.41	5.47	5.51	5.46	5.50	5.50	5.59	5.68	---
21	5.13	5.08	5.39	5.42	5.48	5.48	5.48	5.52	5.52	5.60	5.68	---
22	5.11	5.07	5.44	5.43	5.50	5.48	5.50	5.57	5.56	5.61	5.70	---
23	5.08	5.07	5.41	5.46	5.52	5.47	5.55	5.48	5.59	5.62	5.70	---
24	5.07	5.07	5.38	5.48	5.55	5.45	5.61	5.36	5.57	5.64	5.70	---
25	5.07	5.10	5.36	5.46	5.55	5.45	5.61	5.30	5.56	5.65	5.65	5.13
26	5.07	5.10	5.38	5.44	5.55	5.46	5.55	5.19	5.57	5.66	---	5.12
27	5.09	5.11	5.41	5.44	5.56	5.44	5.53	5.30	5.58	5.65	---	5.11
28	5.10	5.13	5.45	5.48	5.56	5.45	5.54	5.47	5.58	5.65	---	5.16
29	5.09	5.12	5.45	5.48	5.55	5.46	5.51	5.48	5.57	5.63	---	5.21
30	5.08	5.11	5.42	5.49	---	5.48	5.45	5.49	5.56	5.63	---	5.26
31	5.06	---	5.42	5.47	---	5.47	---	5.51	---	5.59	---	---
MEAN	5.14	5.05	5.29	5.39	5.45	5.45	5.45	5.51	5.45	5.60	5.66	5.16

WTR YR 1992 MEAN 5.40 HIGHEST 4.95 NOV. 1, 1991 LOWEST 5.72 AUG. 9, 1992



## GROUND-WATER LEVELS

## RIO GRANDE DE MANATI BASIN

182710066303700. Local number, 207.

LOCATION.--Lat 18°27'10", long 66°30'37", Hydrologic Unit 21010002, 1.92 mi east of Barceloneta plaza, 1.35 mi north of Central Monserrate, and 2.68 mi northeast of Escuela José Cordero. Owner: P.R. Aqueduct and Sewer Authority, Name: Cantito La Luisa.

AQUIFER.--Aymamín Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-30 ft (0-9.14 m), cased 10 in (0.25 m) 0-126 ft (0-38.4 m), perforated 80-126 ft (24.4-38.4 m). Depth 126 ft (38.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 59.0 ft (18.0 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Recording observation well.

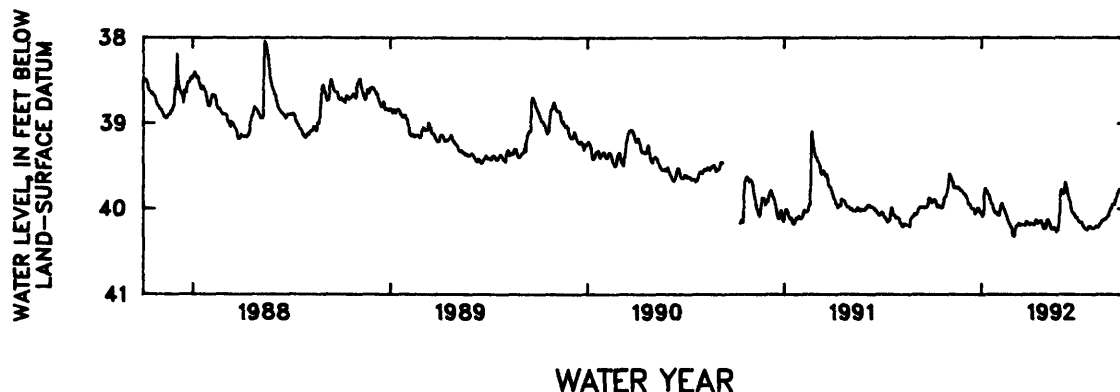
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 36.38 ft (11.09 m) below land-surface datum, May 15, 1986; lowest water level recorded, 89.83 ft (27.38 m) below land-surface datum, Oct. 5, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39.93	39.65	39.83	40.06	40.07	40.32	40.18	40.14	39.82	40.16	40.22	39.95
2	39.92	39.60	39.84	40.08	40.08	40.32	40.17	40.13	39.81	40.16	40.21	39.94
3	39.91	39.60	39.85	40.09	40.07	40.30	40.18	40.13	39.81	40.16	40.22	39.95
4	39.91	39.61	39.86	40.07	40.02	40.23	40.18	40.14	39.69	40.16	40.22	39.92
5	39.91	39.63	39.88	40.06	39.97	40.21	40.18	40.16	39.70	40.16	40.21	39.90
6	39.89	39.65	39.90	39.84	39.95	40.20	40.18	40.17	39.73	40.18	40.20	39.89
7	39.90	39.67	39.94	39.77	39.95	40.20	40.19	40.19	39.76	40.20	40.19	39.88
8	39.91	39.69	39.95	39.77	39.94	40.19	40.19	40.21	39.79	40.21	40.18	39.85
9	39.94	39.70	39.95	39.77	39.98	40.18	40.17	40.23	39.82	40.22	40.17	39.82
10	39.97	39.74	39.95	39.79	39.99	40.17	40.14	40.24	39.85	40.23	40.15	39.82
11	39.98	39.76	39.96	39.80	40.00	40.17	40.13	40.24	39.88	40.24	40.14	39.80
12	39.96	39.76	39.99	39.80	40.02	40.18	40.14	40.24	39.90	40.24	40.14	39.78
13	39.96	39.76	39.99	39.83	40.03	40.20	40.16	40.24	39.93	40.24	40.14	39.78
14	39.96	39.75	40.00	39.84	40.05	40.19	40.17	40.24	39.97	40.24	40.13	39.78
15	39.98	39.75	40.00	39.84	40.07	40.19	40.16	40.22	40.00	40.25	40.13	39.77
16	39.98	39.76	40.00	39.86	40.08	40.19	40.15	40.24	40.03	40.24	40.12	39.78
17	39.98	39.77	40.00	39.89	40.10	40.19	40.15	40.24	40.04	40.23	40.12	39.79
18	39.98	39.75	40.01	39.93	40.12	40.19	40.16	40.24	40.04	40.21	40.12	39.78
19	39.99	39.75	40.03	39.94	40.14	40.19	40.14	40.27	40.06	40.21	40.11	39.77
20	39.98	39.76	40.06	39.95	40.16	40.19	40.14	40.24	40.06	40.21	40.10	39.72
21	39.96	39.77	40.04	39.96	40.17	40.19	40.16	40.23	40.06	40.21	40.10	39.67
22	39.94	39.78	40.04	39.99	40.18	40.20	40.18	40.25	40.08	40.22	40.09	39.60
23	39.91	39.79	40.02	40.01	40.19	40.17	40.19	40.20	40.10	40.23	40.07	39.56
24	39.88	39.78	40.01	40.03	40.21	40.15	40.22	40.08	40.10	40.23	40.08	39.53
25	39.87	39.79	39.99	40.04	40.21	40.15	40.23	40.04	40.10	40.23	40.03	39.50
26	39.86	39.80	39.99	40.05	40.23	40.16	40.23	39.85	40.10	40.23	40.01	39.48
27	39.86	39.80	40.00	40.04	40.27	40.17	40.23	39.80	40.12	40.23	40.00	39.49
28	39.85	39.82	40.02	40.04	40.31	40.18	40.23	39.78	40.14	40.23	40.00	39.50
29	39.82	39.83	40.04	40.05	40.32	40.18	40.21	39.79	40.14	40.22	39.97	39.53
30	39.79	39.83	40.04	40.07	---	40.19	40.17	39.81	40.15	40.22	39.95	39.55
31	39.75	---	40.05	40.06	---	40.19	---	39.83	---	40.21	39.95	---
MEAN	39.92	39.74	39.98	39.95	40.10	40.20	40.18	40.12	39.96	40.21	40.11	39.74

WTR YR 1992 MEAN 40.02 HIGHEST 39.48 SEPT. 26-28, 1992 LOWEST 40.33 FEB. 29, MAR. 1-2, 1992



## GROUND-WATER LEVELS

487

## RIO GRANDE DE MANATI BASIN

182308066260400. Local number, 210.

LOCATION.--Lat 18°23'08", long 66°26'04", Hydrologic Unit 21010002, 4.88 mi southeast of Manati plaza, 5.24 mi southwest of Vega Baja plaza, and 2.25 mi west of Escuela Evaristo Camacho. Owner: Gelo Martínez, Name: Gelo Martínez well.

AQUIFER.--Lares Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.20 m), cased 8 in (0.20 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 574 ft (174.9 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Recording observation well.

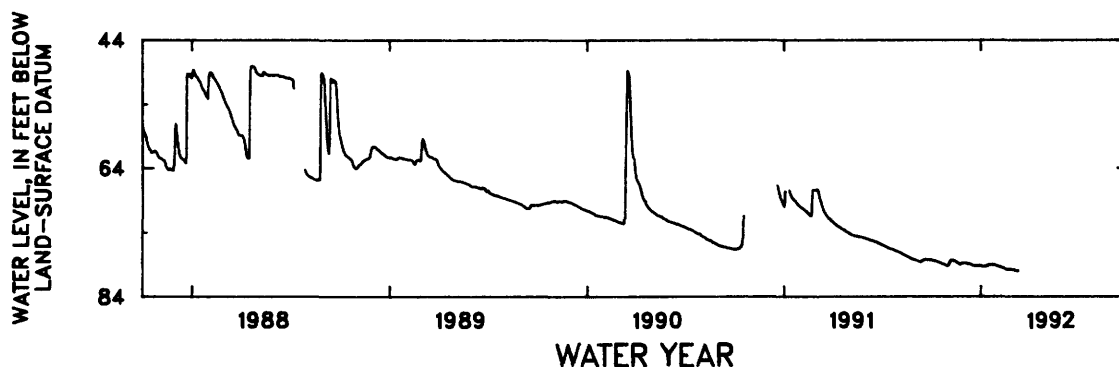
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 40.56 ft (12.36 m) below land-surface datum, May 22, 1986; lowest water level recorded, 83.01 ft (25.3 m) below land-surface datum, Sept. 29, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78.28	79.16	78.75	79.22	79.22	79.82	---	---	---	---	---	---
2	78.30	79.05	78.77	79.23	79.26	79.82	---	---	---	---	---	---
3	78.33	78.89	78.79	79.25	79.30	79.84	---	---	---	---	---	---
4	78.36	78.65	78.80	79.27	79.32	79.92	---	---	---	---	---	---
5	78.38	78.47	78.81	79.29	79.35	79.96	---	---	---	---	---	---
6	78.40	78.38	78.84	79.30	79.38	79.96	---	---	---	---	---	---
7	78.43	78.33	78.87	79.29	79.39	79.98	---	---	---	---	---	---
8	78.45	78.31	78.89	79.28	79.43	79.99	---	---	---	---	---	---
9	78.48	78.31	78.91	79.27	79.48	79.99	---	---	---	---	---	---
10	78.51	78.32	78.93	79.27	79.50	79.99	---	---	---	---	---	---
11	78.54	78.35	78.95	79.24	79.51	---	---	---	---	---	---	---
12	78.57	78.38	78.97	79.19	79.52	---	---	---	---	---	---	---
13	78.60	78.42	79.00	79.16	79.57	---	---	---	---	---	---	---
14	78.63	78.47	79.02	79.12	79.61	---	---	---	---	---	---	---
15	78.66	78.54	79.05	79.08	79.66	---	---	---	---	---	---	---
16	78.70	78.59	79.08	79.05	79.69	---	---	---	---	---	---	---
17	78.73	78.65	79.12	79.03	79.69	---	---	---	---	---	---	---
18	78.77	78.70	79.15	79.01	79.73	---	---	---	---	---	---	---
19	78.80	78.77	79.17	79.00	79.74	---	---	---	---	---	---	---
20	78.83	78.81	79.21	79.00	79.75	---	---	---	---	---	---	---
21	78.87	78.87	79.22	79.00	79.76	---	---	---	---	---	---	---
22	78.91	78.91	79.22	79.00	79.77	---	---	---	---	---	---	---
23	78.94	78.94	79.20	79.01	79.77	---	---	---	---	---	---	---
24	78.97	78.96	79.18	79.02	79.78	---	---	---	---	---	---	82.90
25	79.00	78.93	79.17	79.04	79.78	---	---	---	---	---	---	82.91
26	79.04	78.86	79.17	79.06	79.78	---	---	---	---	---	---	82.92
27	79.09	78.80	79.17	79.08	79.79	---	---	---	---	---	---	82.92
28	79.13	78.78	79.17	79.10	79.80	---	---	---	---	---	---	82.92
29	79.18	78.76	79.18	79.13	79.82	---	---	---	---	---	---	83.00
30	79.22	78.75	79.18	79.16	---	---	---	---	---	---	---	---
31	79.21	---	79.21	79.19	---	---	---	---	---	---	---	---
MEAN	78.72	78.67	79.04	79.14	79.59	79.93	---	---	---	---	---	82.93

WTR YR 1992 MEAN 79.22 HIGHEST 78.27 OCT. 1, 1991 LOWEST 83.01 SEPT. 29, 1992



## GROUND-WATER LEVELS

## RIO CIBUCO BASIN

182647066201700. Local number, 70.

LOCATION.--Lat 18°26'47", long 66°20'17", Hydrologic Unit 21010002, 1.52 mi north of Vega Alta plaza, 4.78 mi southwest of Dorado plaza, and 2.01 mi northwest of Escuela Industrial para Mujeres. Owner: P.R. Aqueduct and Sewer Authority, Name: Sabana Hoyos.

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in (0.20 m), cased 0-90 ft (0-27.43 m), perforated. Depth 90 ft (27.43 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 49 ft (14.9 m) above mean sea level, from topographic map.

Measuring point: Top of casing wooden cover, 1.30 ft (0.40 m) above land-surface datum.

REMARKS.--Recording observation well.

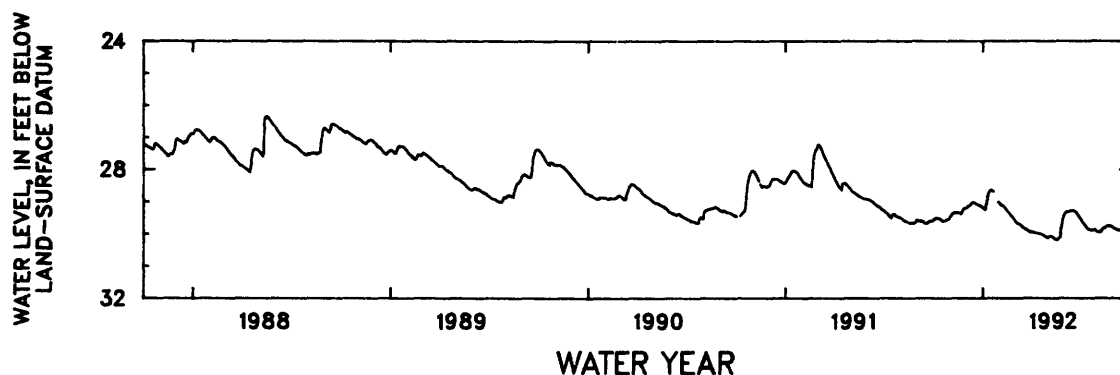
PERIOD OF RECORD.--February 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 21.33 ft (6.50 m) below land-surface datum, Oct. 26, 1976; lowest water level recorded, 31.10 ft (9.48 m) below land-surface datum, July 31, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.58	29.48	29.19	29.19	29.07	29.61	29.94	30.09	29.34	29.57	29.93	29.83
2	29.54	29.45	29.18	29.20	29.09	29.63	29.94	30.08	29.33	29.60	29.94	29.83
3	29.53	29.42	29.17	29.21	29.11	29.65	29.95	30.07	29.31	29.62	29.94	29.84
4	29.53	29.40	29.14	29.23	29.12	29.67	29.95	30.07	29.31	29.65	29.94	29.86
5	29.53	29.38	29.13	29.24	29.12	29.67	29.95	30.07	29.30	29.66	29.94	29.87
6	29.50	29.36	29.12	29.20	29.12	29.68	29.96	30.07	29.30	29.68	29.92	29.88
7	29.50	29.36	29.11	29.07	29.13	29.69	29.97	30.08	29.30	29.71	29.90	29.88
8	29.50	29.35	29.10	28.97	29.15	29.70	29.97	30.10	29.29	29.73	29.87	29.87
9	29.50	29.34	29.08	28.91	29.17	29.70	29.98	30.11	29.29	29.75	29.84	29.88
10	29.51	29.34	29.05	28.85	29.18	29.71	29.98	30.12	29.28	29.78	29.82	29.88
11	29.52	29.34	29.03	28.78	29.21	29.73	29.98	30.14	29.27	29.80	29.81	29.89
12	29.52	29.34	29.02	28.73	29.23	29.74	29.98	30.15	29.26	29.81	29.81	29.89
13	29.53	29.33	29.02	28.69	29.25	29.76	29.99	30.16	29.27	29.83	29.81	29.90
14	29.54	29.34	29.02	28.66	29.27	29.78	30.00	30.16	29.26	29.85	29.80	29.89
15	29.56	29.33	29.02	28.65	29.29	29.80	30.00	30.17	29.27	29.86	29.78	29.88
16	29.57	29.34	29.03	28.64	29.31	29.82	30.00	30.16	29.28	29.86	29.76	29.89
17	29.59	29.34	29.04	28.64	29.33	29.83	30.00	30.16	29.28	29.86	29.75	29.89
18	29.60	29.35	29.05	28.65	29.35	29.83	30.01	30.15	29.29	29.86	29.74	29.89
19	29.60	29.36	29.06	28.66	29.37	29.84	30.02	30.15	29.30	29.87	29.74	29.89
20	29.59	29.37	29.07	28.67	29.39	29.86	30.03	30.12	29.32	29.88	29.74	29.80
21	29.59	29.38	29.08	28.69	29.41	29.87	30.04	30.10	29.34	29.88	29.75	29.74
22	29.59	29.36	29.09	---	29.43	29.87	30.05	30.09	29.35	29.87	29.74	29.73
23	29.59	29.34	29.10	---	29.44	29.89	30.06	29.98	29.38	29.86	29.74	29.71
24	29.58	29.28	29.10	---	29.47	29.90	30.08	29.86	29.40	29.86	29.75	29.70
25	29.57	29.25	29.10	---	29.49	29.91	30.09	29.78	29.43	29.86	29.76	29.69
26	29.56	29.22	29.11	---	29.51	29.92	30.10	29.68	29.45	29.87	29.77	29.69
27	29.55	29.21	29.13	---	29.53	29.93	30.10	29.57	29.47	29.89	29.77	29.70
28	29.55	29.20	29.13	---	29.56	29.92	30.11	29.49	29.50	29.90	29.79	29.70
29	29.54	29.20	29.14	29.02	29.58	29.92	30.12	29.43	29.52	29.91	29.81	29.72
30	29.53	29.19	29.16	29.02	---	29.93	30.10	29.39	29.54	29.92	29.82	29.74
31	29.51	---	29.17	29.05	---	29.94	---	29.36	---	29.93	29.82	---
MEAN	29.55	29.33	29.09	28.90	29.30	29.80	30.01	29.97	29.34	29.81	29.82	29.82

WTR YR 1992 MEAN 29.58 HIGHEST 28.64 JAN. 15-18, 1992 LOWEST 30.18 MAY 14-16, 1992



## RIO CIBUCO BASIN

182615066235300. Local number, 211.

LOCATION.--Lat 18°26'15", long 66°23'53", Hydrologic Unit 21010002, 4.46 mi southeast of Manatí plaza, 5.48 mi southwest of Vega Baja plaza, and 1.22 mi east of Hwy 155 km 58.3. Owner: P.R. Aqueduct and Sewer Authority, Name: Rosario No. 2.

AQUIFER.--Agua de Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 14 in (0.36 m) 0-200 ft (0-61.0 m), diameter 12 in (0.30 m) 200-250 ft (61.0-76.2 m), cased 12 in (0.30 m) 0-250 ft (0-76.2 m), perforated 210-250 ft (64.0-76.2 m), diameter 10 in (0.25 m) 250-270 ft (76.2-82.3 m), open hole; concrete sealed 0-200 ft (0-61.0 m). Depth 270 ft (82.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 215 ft (65.5 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.15 ft (0.35 m) above land-surface datum.

REMARKS.--Recording observation well.

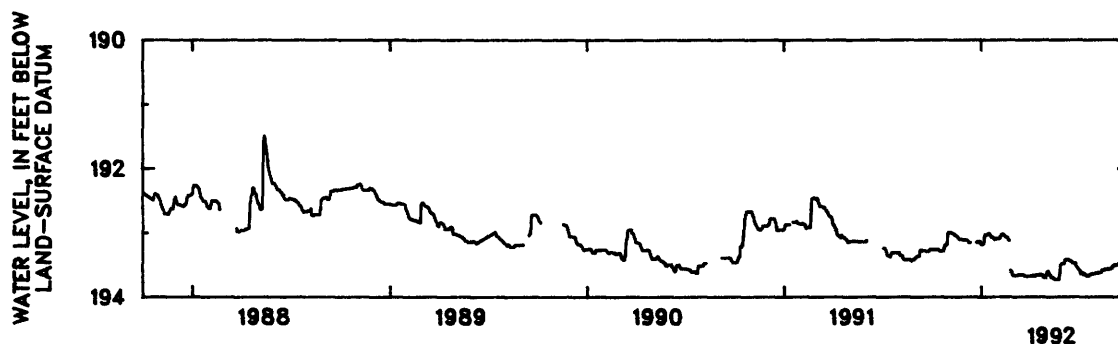
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 191.29 ft (58.30 m) below land-surface datum, May 16, 1986; lowest water level recorded, 193.73 ft (59.0 m) below land-surface datum, May 15-23, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193.26	192.99	193.11	193.18	193.09	193.67	193.68	193.63	193.48	193.58	193.63	193.52
2	193.26	192.99	193.11	193.18	193.09	193.67	193.68	193.60	193.48	193.64	193.63	193.50
3	193.26	192.99	193.11	193.18	193.09	193.67	193.68	193.60	193.42	193.64	193.63	193.49
4	193.26	192.99	193.11	193.18	193.08	193.67	193.68	193.60	193.42	193.63	193.62	193.49
5	193.26	192.99	193.12	193.17	193.06	193.67	193.67	193.63	193.42	193.62	193.62	193.50
6	193.26	193.00	193.12	193.15	193.05	193.67	193.67	193.66	193.42	193.62	193.62	193.50
7	193.26	193.00	193.13	193.06	193.03	193.67	193.67	193.66	193.42	193.65	193.62	193.50
8	193.26	193.00	193.15	193.03	193.03	193.66	193.67	193.67	193.42	193.65	193.62	193.50
9	193.26	193.00	193.15	193.03	193.02	193.66	193.68	193.70	193.42	193.65	193.62	193.48
10	193.26	193.01	193.15	193.03	193.02	193.65	193.67	193.70	193.42	193.64	193.61	193.48
11	193.26	193.02	193.15	193.03	193.03	193.65	193.66	193.70	193.43	193.66	193.58	193.48
12	193.26	193.02	---	193.03	193.03	193.65	193.66	193.70	193.43	193.66	193.58	193.47
13	193.26	193.04	---	193.02	193.04	193.66	193.66	193.72	193.43	193.67	193.58	193.46
14	193.27	193.04	---	193.01	193.05	193.66	193.66	193.72	193.44	193.68	193.58	193.45
15	193.28	193.04	---	193.02	193.06	193.66	193.66	193.72	193.45	193.68	193.58	193.44
16	193.28	193.05	---	193.01	193.07	193.66	193.66	193.73	193.45	193.68	193.57	193.44
17	193.29	193.06	---	193.02	193.07	193.66	193.66	193.73	193.47	193.67	193.57	193.45
18	193.28	193.06	---	193.04	193.07	193.66	193.65	193.73	193.47	193.67	193.57	193.45
19	193.28	193.09	---	193.06	193.09	193.66	193.65	193.73	193.47	193.65	193.57	193.45
20	193.28	193.09	---	193.07	193.11	193.67	193.65	193.73	193.47	193.65	193.57	193.45
21	193.28	193.10	---	193.07	193.12	193.68	193.66	193.73	193.47	193.65	193.57	193.29
22	193.28	193.10	---	193.07	193.12	193.68	193.66	193.73	193.47	193.65	193.56	193.29
23	193.24	193.10	---	193.07	---	193.68	193.66	193.73	193.50	193.64	193.57	193.29
24	193.24	193.10	193.15	193.09	193.59	193.68	193.69	193.67	193.51	193.64	193.57	193.28
25	193.20	193.10	193.14	193.10	193.59	193.68	193.70	193.62	193.53	193.64	193.57	193.28
26	193.19	193.10	193.14	193.10	193.60	193.68	193.70	193.51	193.54	193.64	193.57	193.29
27	193.18	193.10	193.14	193.09	193.66	193.68	193.70	193.49	193.55	193.64	193.56	193.29
28	193.18	193.11	193.13	193.09	193.66	193.68	193.70	193.48	193.57	193.64	193.55	193.30
29	193.17	193.11	193.14	193.09	193.67	193.68	193.70	193.48	193.57	193.63	193.55	193.33
30	193.06	193.11	193.13	193.09	---	193.68	193.65	193.48	193.58	193.63	193.54	193.41
31	193.01	---	193.17	193.09	---	193.68	---	193.48	---	193.63	193.52	---
MEAN	193.24	193.05	193.13	193.08	193.19	193.67	193.67	193.65	193.47	193.65	193.58	193.42

WTR YR 1992 MEAN 193.41 HIGHEST 192.99 NOV. 1-5, 1991 LOWEST 193.73 MAY 16-23, 1992



WATER YEAR

## GROUND-WATER LEVELS

## RIO CIBUCO BASIN

182515066194000. Local number, 212.

LOCATION.--Lat 18°25'15", long 66°19'40", Hydrologic Unit 21010002, 5.15 mi southwest of Dorado plaza, 0.49 mi north of Vega Alta plaza, and 1.04 mi northwest of Escuela Industrial para Mujeres. Owner: U.S. Geological Survey, WRD, Name: Ponderosa TW-1.

AQUIFER.--Aguada Limestone-Cibao Formation.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-136 ft (0-41.1 m), perforated 121-131 ft (36.9-39.9 m); bentonite packed 0.5-121 ft (0.15-36.9 m). Depth 136 ft (39.9 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 98.0 ft (29.9 m) above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

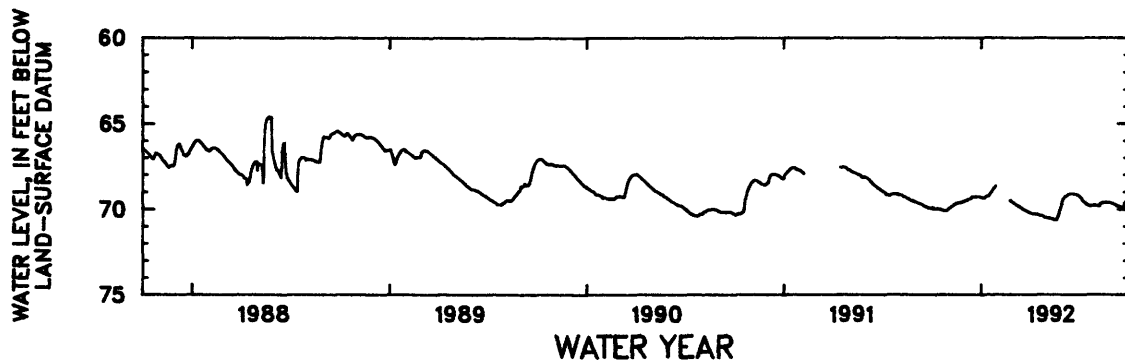
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 63.05 ft (19.22 m) below land-surface datum, July 15, 1987; lowest water level recorded, 74.63 ft (22.75 m) below land-surface datum, Oct. 27-28, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69.95	69.98	69.53	69.32	---	69.65	70.21	70.49	69.42	69.25	69.77	69.67
2	69.96	69.95	69.52	69.32	---	69.66	70.22	70.50	69.38	69.26	69.78	69.70
3	69.96	69.92	69.52	69.32	---	69.68	70.24	70.51	69.35	69.31	69.79	69.71
4	69.96	69.90	69.50	69.33	---	69.73	70.24	70.52	69.31	69.33	69.80	69.72
5	69.97	69.88	69.50	69.34	---	69.75	70.25	70.50	69.25	69.36	69.82	69.73
6	69.97	69.86	69.49	69.34	---	69.76	70.25	70.51	69.25	69.38	69.80	69.74
7	69.97	69.84	69.48	69.34	---	69.76	70.25	70.52	69.25	69.49	69.78	69.79
8	69.98	69.82	69.44	69.33	---	69.79	70.26	70.53	69.23	69.51	69.71	69.80
9	69.98	69.80	69.43	69.31	---	69.81	70.25	70.53	69.19	69.55	69.67	69.80
10	69.98	69.78	69.42	69.30	---	69.84	70.27	70.54	69.17	69.57	69.66	69.82
11	69.98	69.75	69.41	69.25	---	69.86	70.28	70.55	69.14	69.60	69.63	69.83
12	69.98	69.74	69.39	69.24	---	69.86	70.28	70.56	69.12	69.65	69.63	69.84
13	69.99	69.72	69.39	69.24	---	69.88	70.29	70.56	69.11	69.69	69.63	69.85
14	69.99	69.70	69.35	69.23	---	69.90	70.29	70.58	69.11	69.70	69.62	69.87
15	70.00	69.68	69.31	69.23	---	69.92	70.30	70.61	69.11	69.71	69.60	69.89
16	70.02	69.65	69.29	69.19	---	69.95	70.32	70.62	69.11	69.75	69.59	69.91
17	70.02	69.65	69.29	69.15	---	69.97	70.33	70.62	69.11	69.78	69.59	69.91
18	70.03	69.64	69.27	69.10	---	69.99	70.35	70.62	69.11	69.79	69.59	69.91
19	70.04	69.64	69.27	69.06	---	70.02	70.35	70.62	69.11	69.79	69.59	69.91
20	70.06	69.63	69.27	69.00	---	70.03	70.36	70.59	69.11	69.79	69.59	69.85
21	70.07	69.63	69.27	68.92	---	70.05	70.37	70.49	69.10	69.80	69.60	69.75
22	70.08	69.62	69.26	68.89	---	70.06	70.37	70.43	69.11	69.78	69.60	69.67
23	70.08	69.62	69.26	68.84	---	70.08	70.38	70.33	69.12	69.79	69.61	69.64
24	70.09	69.62	69.27	68.80	69.52	70.09	70.39	70.22	69.13	69.79	69.61	69.61
25	70.09	69.60	69.27	68.76	69.54	70.10	70.41	70.09	69.14	69.79	69.61	69.58
26	70.09	69.60	69.27	68.73	69.54	70.12	70.43	70.01	69.16	69.77	69.62	69.56
27	70.08	69.58	69.27	68.69	69.57	70.14	70.47	69.89	69.17	69.76	69.62	69.56
28	70.08	69.57	69.28	68.65	69.59	70.17	70.47	69.79	69.19	69.76	69.64	69.54
29	70.07	69.57	69.28	---	69.63	70.18	70.48	69.71	69.20	69.76	69.66	69.55
30	70.06	69.55	69.28	---	---	70.19	70.48	69.62	69.23	69.77	69.66	69.56
31	70.00	---	69.29	---	---	70.20	---	69.51	---	69.77	69.66	---
MEAN	70.02	69.72	69.36	69.11	69.56	69.94	70.33	70.36	69.18	69.64	69.66	69.74

WTR YR 1992 MEAN 69.74 HIGHEST 68.62 JAN. 29, 1992 LOWEST 70.62 MAY 15-19, 1992





## GROUND-WATER LEVELS

491

## RIO CIBUCO BASIN

182330066185700. Local number, 213.

LOCATION.--Lat 18°23'30", long 66°18'57", Hydrologic Unit 21010002, 1.82 mi southeast of Vega Alta plaza, 4.23 mi west of Toa Alta plaza, and 1.27 mi northwest off the intersection of Hwy 820 with Hwy 823. Owner: P.R. Aqueduct and Sewer Authority, Name: Pampano No. 2.

AQUIFER.--Rio Indio Limestone-Lares Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-130 ft (0-39.6 m), diameter 14 in (0.36 m), cased 12 in (0.30 m) 0-220 ft (0-67.1 m); open hole 220-330 ft (67.6-100.6 m). Depth 330 ft (100.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 394 ft (120 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 2.95 ft (0.90 m) above land-surface datum.

REMARKS.--Recording observation well.

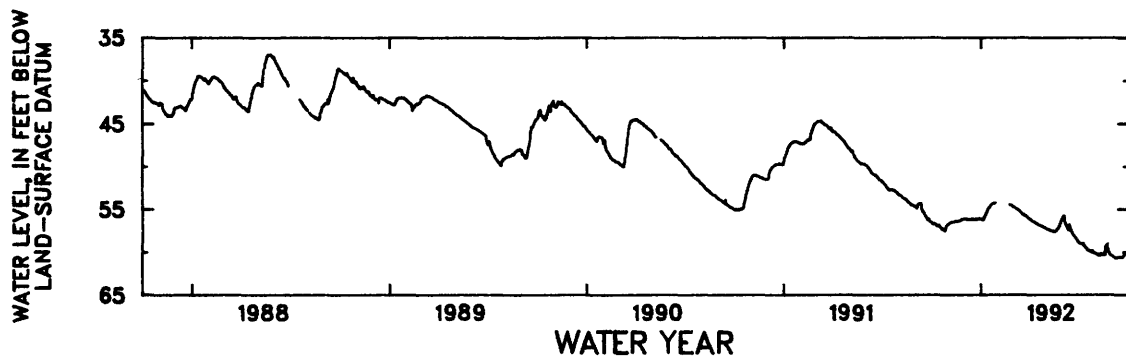
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.40 ft (10.50 m) below land-surface datum, Dec. 6, 1985; lowest water level recorded, 60.70 ft (18.5 m) below land-surface datum, Sept. 6, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56.52	56.73	56.13	56.12	---	54.72	56.16	57.24	55.88	58.92	60.17	60.49
2	56.57	56.69	56.13	56.11	---	54.74	56.18	57.32	55.76	58.95	60.22	60.54
3	56.67	56.63	56.13	56.16	---	54.75	56.23	57.30	55.74	58.98	60.23	60.56
4	56.72	56.56	56.12	56.18	---	54.80	56.31	57.32	56.33	59.02	60.23	60.61
5	56.77	56.53	56.14	56.24	---	54.87	56.34	57.35	56.61	---	60.35	60.61
6	56.77	56.50	56.14	56.09	---	54.91	56.40	57.38	56.81	---	60.35	60.68
7	56.66	56.50	56.13	55.92	---	54.95	56.43	57.41	56.94	59.05	60.36	60.64
8	56.76	56.48	56.14	55.79	---	54.98	56.43	57.43	57.07	58.94	60.36	60.62
9	56.77	56.46	56.14	55.69	---	55.01	56.46	57.50	57.18	59.11	60.36	60.66
10	56.80	56.44	56.14	55.55	---	55.04	56.51	57.50	57.30	59.21	60.32	60.62
11	56.95	56.43	56.15	55.33	---	55.10	56.55	57.51	57.42	59.30	60.33	60.61
12	56.96	56.42	56.16	55.25	---	55.18	56.60	57.51	56.80	59.35	60.33	60.61
13	56.98	56.38	56.15	55.07	---	55.23	56.64	57.53	56.78	59.44	60.32	60.60
14	56.95	56.39	56.14	54.94	---	55.30	56.70	57.57	57.22	59.50	60.29	60.58
15	56.86	56.38	56.12	54.88	---	55.34	56.72	57.61	57.43	59.58	60.20	60.59
16	56.87	56.35	56.13	54.74	---	55.41	56.78	57.57	57.43	59.72	60.21	60.60
17	57.04	56.33	56.14	54.69	---	55.56	56.83	57.60	57.60	59.75	60.26	60.61
18	57.17	56.34	56.15	54.60	---	55.60	56.84	57.54	57.80	59.80	60.30	60.61
19	57.20	56.37	56.16	54.54	---	55.60	56.85	57.49	57.90	59.83	59.66	60.63
20	57.21	56.34	56.18	54.47	---	55.60	56.87	57.45	58.02	59.83	59.31	60.57
21	57.37	56.34	56.21	54.39	---	55.63	56.91	57.32	58.07	59.82	59.15	60.44
22	57.35	56.33	56.13	54.35	---	55.75	56.96	57.25	58.18	59.86	59.03	60.30
23	57.29	56.29	56.10	54.33	---	55.75	56.98	57.15	58.24	59.97	59.60	60.24
24	57.30	56.25	56.19	54.31	54.47	55.79	56.97	57.03	58.31	59.97	59.80	60.17
25	57.37	56.20	56.10	54.28	54.48	55.80	57.01	56.85	58.40	60.00	60.00	60.13
26	57.53	56.15	56.10	54.26	54.52	55.81	57.07	56.71	58.54	59.82	60.13	60.09
27	57.40	56.16	56.10	54.26	54.56	55.92	57.12	56.56	58.61	60.04	60.24	60.04
28	57.02	56.14	56.08	54.24	54.60	56.00	57.13	56.38	58.76	60.05	60.33	60.02
29	56.89	56.13	56.08	---	54.61	56.02	57.15	56.23	58.78	60.07	60.36	59.99
30	56.82	56.13	56.09	---	---	56.06	57.21	56.08	58.83	60.12	60.38	60.00
31	56.78	---	56.11	---	---	56.11	---	55.99	---	60.13	60.41	---
MEAN	56.98	56.38	56.13	55.10	54.54	55.40	56.71	57.18	57.49	59.59	60.12	60.45

WTR YR 1992 MEAN 57.36 HIGHEST 54.15 JAN. 29, 1992 LOWEST 60.70 SEPT. 6, 1992



## GROUND-WATER LEVELS

## RIO DE LA PLATA BASIN

182746066170800. Local number, 214.

LOCATION.--Lat 18°27'46", long 66°17'08", Hydrologic Unit 210100002, 1.58 mi west of Dorado plaza, 0.59 mi southeast of Dorado Airport main gate, and 3.76 mi north of Hwy 2 km 25.2. Owner: Dorado Beach Hotel, Name: Dorado Beach No. 7.

AQUIFER.--Aymam[n Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 18 in (0.46 m). Depth 100 ft (30.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 26.0 ft (8.0 m) above mean sea level, from topographic map. Prior to this report, elevation incorrectly used was 39.0 ft (11.9 m). Measuring point: Hole on side of casing, 1.10 ft (0.34 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

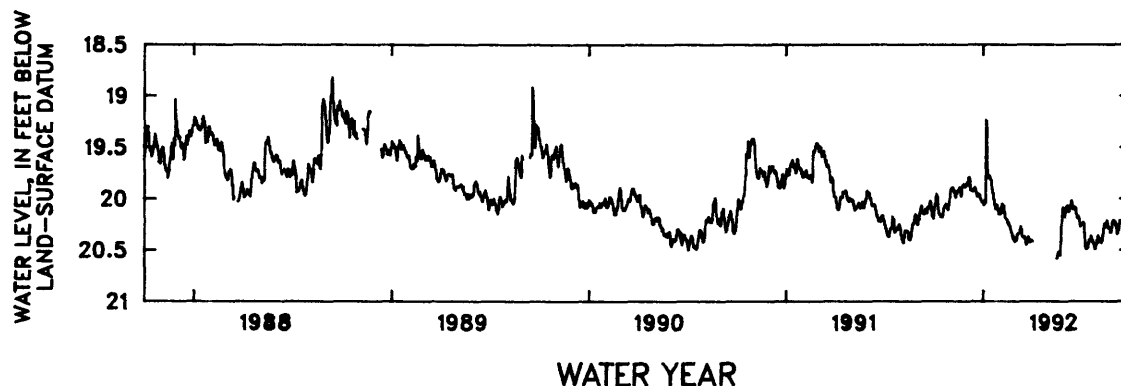
PERIOD OF RECORD.-- November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.23 ft (5.56 m) below land-surface datum, Nov. 16, 1985; lowest water level recorded, 20.68 ft (6.30 m) below land-surface datum, May 16, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.17	19.91	19.85	20.04	20.15	20.41	---	---	20.13	20.25	20.38	20.26
2	20.12	19.90	19.87	20.06	20.14	20.40	---	---	20.09	20.25	20.42	20.25
3	20.08	19.91	19.85	20.05	20.14	20.36	---	---	20.07	20.23	20.41	20.29
4	20.05	19.90	19.81	20.01	20.08	20.34	---	---	20.07	20.23	20.39	20.35
5	19.98	19.89	19.79	20.04	20.05	20.35	---	---	20.07	20.25	20.41	20.33
6	19.95	19.90	19.80	19.23	20.07	20.34	---	---	20.11	20.34	20.43	20.31
7	19.97	19.92	19.83	19.29	20.08	20.33	---	---	20.13	20.43	20.41	20.29
8	19.98	19.93	19.91	19.61	20.07	20.32	---	---	20.12	20.47	20.39	20.23
9	20.05	19.95	19.92	19.76	20.13	20.29	---	---	20.09	20.49	20.35	20.21
10	20.11	19.98	19.91	19.81	20.15	20.27	---	---	20.08	20.48	20.29	20.23
11	20.14	19.99	19.91	19.78	20.19	20.30	---	---	20.03	20.48	20.24	20.23
12	20.15	19.94	19.93	19.78	20.20	20.35	---	---	20.02	20.48	20.28	20.23
13	20.16	19.95	19.92	19.79	20.21	20.37	---	---	20.05	20.44	20.27	20.24
14	20.17	19.92	19.92	19.81	20.22	20.38	---	---	20.08	20.41	20.24	20.24
15	20.18	19.92	19.91	19.82	20.24	20.38	---	---	20.10	20.40	20.24	20.27
16	20.16	19.93	19.89	19.86	20.23	20.38	---	20.58	20.10	20.41	20.21	20.29
17	20.18	19.91	19.90	19.91	20.26	20.37	---	20.56	20.08	20.39	20.23	20.31
18	20.17	19.89	19.93	19.94	20.26	20.39	---	20.53	20.08	20.36	20.28	20.32
19	20.12	19.91	19.94	19.95	20.27	20.43	---	20.52	20.11	20.38	20.29	20.36
20	20.09	19.92	19.98	20.01	20.30	20.45	---	20.55	20.09	20.42	20.28	20.31
21	20.08	19.98	19.95	20.01	20.32	20.42	---	20.52	20.14	20.40	20.29	20.24
22	20.07	19.91	19.98	20.05	20.33	20.43	---	20.55	20.16	20.42	20.33	20.20
23	20.06	19.88	19.97	20.07	20.35	20.38	---	20.42	20.19	20.44	20.32	20.15
24	20.05	19.87	19.96	20.10	20.38	20.37	---	20.27	20.18	20.44	20.33	20.16
25	20.07	19.87	19.96	20.09	20.36	20.39	---	20.21	20.17	20.49	20.27	20.12
26	20.07	19.86	19.99	20.06	20.40	20.42	---	20.16	20.19	20.49	20.22	20.15
27	20.10	19.88	20.01	20.07	20.41	20.42	---	20.08	20.25	20.45	20.21	20.19
28	20.11	19.89	20.02	20.11	20.42	20.42	---	20.14	20.27	20.44	20.22	20.23
29	20.07	19.87	20.03	20.12	20.40	20.41	---	20.16	20.26	20.40	20.21	20.28
30	20.03	19.87	20.03	20.15	---	20.41	---	20.16	20.25	20.37	20.22	20.31
31	19.98	---	20.04	20.15	---	20.41	---	20.18	---	20.36	20.22	---
MEAN	20.09	19.91	19.93	19.92	20.23	20.38	---	20.35	20.13	20.40	20.30	20.25

WTR YR 1992 MEAN 20.16 HIGHEST 19.03 JAN. 6, 1992 LOWEST 20.68 MAY 16, 1992



## GROUND-WATER LEVELS

493

## RIO DE LA PLATA BASIN

182530066135400. Local number, 216.

LOCATION.--Lat 18°25'30", long 66°13'54", Hydrologic Unit 21010005, 2.61 mi northeast of Toa Alta plaza, 2.73 mi southwest of Sabana Seca U.S. Naval Radio Station, and 1.76 mi southeast of Hwy 2 km 17.7. Owner: P.R. Aqueduct and Sewer Authority, Name: Pozo Navy-Campanillas.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m) 0-106 ft (0-32.3 m), cased 16 in (0.41 m) 0-20 ft (0-6.10 m), cased 12 in (0.30 m) 0-106 ft (0-32.3 m), perforated 20-106 ft (6.10-32.3 m), diameter 10 in (0.25 m) 106-140 ft (32.3-42.7 m), cased 10 in (0.25 m) 106-140 ft (32.3-42.7 m), perforated 106-140 ft (32.3-42.7 m). Depth 140 ft (42.7 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 13.0 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.80 ft (0.55 m) above land-surface datum.

REMARKS.--Recording observation well.

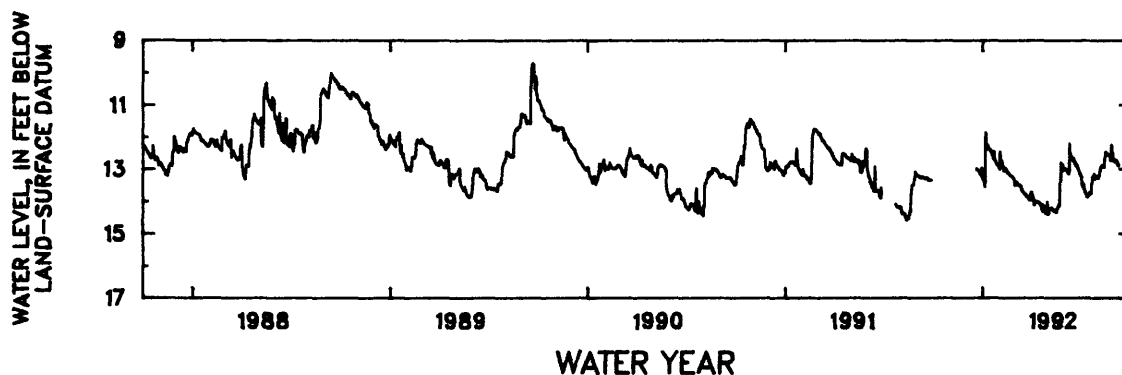
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.38 ft (2.86 m) below land-surface datum, June 23, 1987; lowest water level recorded, 14.72 ft (4.49 m) below land-surface datum, Apr. 28, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	13.31	13.00	13.52	13.76	14.41	13.03	13.27	13.27	12.70
2	---	---	---	13.35	12.43	13.41	13.83	14.26	12.99	13.43	13.27	12.71
3	---	---	---	13.35	12.77	13.40	13.87	14.22	13.02	13.49	13.17	12.73
4	---	---	---	13.35	12.72	13.41	14.00	14.21	13.05	13.55	13.06	12.79
5	---	---	---	13.54	12.74	13.43	14.11	14.22	13.08	13.56	12.99	12.74
6	---	---	---	11.84	12.82	13.45	14.01	14.20	13.12	13.46	12.92	12.86
7	---	---	---	11.95	12.90	13.49	14.00	14.20	13.15	13.64	12.92	12.89
8	---	---	---	12.24	12.95	13.51	13.99	14.24	13.06	13.69	12.87	---
9	---	---	---	12.37	13.06	13.49	14.02	14.27	12.18	13.72	12.92	---
10	---	---	---	12.30	12.99	13.49	14.00	14.30	12.67	13.77	12.90	---
11	---	---	---	12.26	12.96	13.50	14.02	14.26	12.51	13.80	12.94	---
12	---	---	---	12.37	12.97	13.55	14.03	14.27	12.59	13.85	12.93	---
13	---	---	---	12.38	13.01	13.63	14.02	14.28	12.67	13.87	12.73	---
14	---	---	---	12.38	13.04	13.68	14.03	14.30	12.69	13.83	12.51	---
15	---	---	---	12.41	13.11	13.71	14.06	14.34	12.73	13.80	12.45	---
16	---	---	---	12.44	13.11	13.71	14.08	14.31	12.65	13.77	12.48	---
17	---	---	---	12.43	13.13	13.74	14.10	14.20	12.74	13.72	12.50	---
18	---	---	---	12.54	13.14	13.75	14.15	14.18	12.78	13.73	12.52	---
19	---	---	---	12.59	13.15	13.77	14.26	14.16	12.84	13.73	12.53	---
20	---	---	12.99	12.66	13.17	13.80	14.31	14.11	12.89	13.75	12.55	---
21	---	---	13.02	12.66	13.21	13.84	14.12	14.13	12.89	13.42	12.53	---
22	---	---	13.01	12.43	13.21	13.83	14.11	13.61	12.86	13.21	12.58	---
23	---	---	13.02	12.71	13.23	13.85	14.21	13.33	12.95	13.27	12.59	---
24	---	---	13.05	12.75	13.23	13.86	14.26	12.78	12.99	13.29	12.75	12.94
25	---	---	13.07	12.78	13.24	13.88	14.35	12.99	13.02	13.13	12.63	12.96
26	---	---	13.09	12.83	13.27	13.91	14.35	13.08	13.06	13.27	12.22	13.02
27	---	---	13.16	12.85	13.31	13.86	14.36	12.85	13.11	13.30	12.47	13.06
28	---	---	13.18	12.88	13.35	13.97	14.38	12.93	13.15	13.24	12.53	13.00
29	---	---	13.18	12.89	13.37	13.84	14.00	13.01	13.18	13.22	12.69	12.97
30	---	---	12.96	12.90	---	13.74	14.31	12.97	13.23	13.24	12.75	12.98
31	---	---	13.28	12.94	---	13.70	---	13.00	---	13.26	12.70	---
MEAN	---	---	13.08	12.67	13.05	13.67	14.10	13.86	12.90	13.53	12.74	12.88

WTR YR 1992 MEAN 13.28 HIGHEST 11.84 JAN. 6, 1992 LOWEST 14.51 APR. 27, 1992



## GROUND-WATER LEVELS

## RIO DE LA PLATA BASIN

182655066142400. Local number, 217.

LOCATION.--Lat 18°26'55", long 66°14'24", Hydrologic Unit 21010005, 4.00 mi northeast of Toa Alta plaza, 3.40 mi northwest of Hwy 2 km 17.7, and 3.49 mi northwest of Sabana Seca U.S. Naval Radio Station. Owner: U.S. Geological Survey, WRD, Name: Monserrate TW-2.

AQUIFER.--Alluvial Deposits.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-80 ft (0-24.4 m), perforated 10-80 ft (3.05-24.4 m). Depth 80 ft (24.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 3.30 ft (1.00 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.50 ft (1.07 m) above land-surface datum.

REMARKS.--Recording observation well.

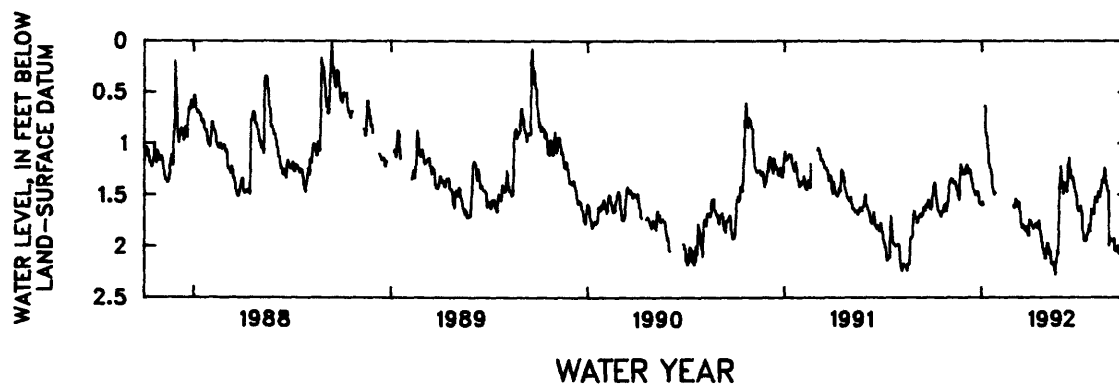
PERIOD OF RECORD.--November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.02 ft (0.006 m) below land-surface datum, May 16, 1986; lowest water level recorded, 2.28 ft (0.69 m) below land-surface datum, May 16, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.62	1.48	1.29	1.60	---	1.63	1.76	1.99	1.46	1.64	1.57	1.94
2	1.52	1.41	1.30	1.59	---	1.63	1.77	1.97	1.38	1.63	1.57	1.93
3	1.49	1.39	1.24	1.58	---	1.58	1.79	1.98	1.39	1.61	1.49	1.98
4	1.45	1.36	1.23	1.57	---	1.54	1.80	2.02	1.41	1.66	1.47	2.05
5	1.40	1.35	1.21	1.60	---	1.56	1.81	2.08	1.42	1.69	1.52	2.05
6	1.38	1.34	1.22	---	---	1.57	1.83	2.04	1.45	1.80	1.52	2.05
7	1.39	1.37	1.25	---	---	1.60	1.82	2.07	1.47	1.89	1.52	2.03
8	1.44	1.36	1.29	.64	---	1.62	1.81	2.11	1.41	1.93	1.47	2.01
9	1.51	1.35	1.29	.90	---	1.60	1.81	2.17	1.20	1.95	1.45	2.02
10	1.55	1.38	1.25	.91	---	1.57	1.78	2.18	1.27	1.95	1.42	2.04
11	1.58	1.39	1.29	.93	---	1.60	1.79	2.18	1.14	1.95	1.35	2.07
12	1.62	1.37	1.32	.95	---	1.67	1.78	2.17	1.18	1.95	1.38	2.06
13	1.65	1.38	1.34	1.02	---	1.73	1.82	2.16	1.25	1.94	1.38	2.06
14	1.66	1.38	1.36	1.12	---	1.78	1.80	2.19	1.30	1.89	1.34	2.06
15	1.67	1.41	1.39	1.17	---	1.80	1.77	2.22	1.34	1.87	1.26	2.09
16	1.68	1.44	1.42	1.21	---	1.82	1.75	2.28	1.32	1.87	1.24	2.11
17	1.70	1.46	1.45	1.23	---	1.81	1.79	2.16	1.33	1.85	1.31	2.13
18	1.71	1.47	1.46	1.25	---	1.79	1.85	2.16	1.34	1.79	1.37	2.13
19	1.67	1.51	1.48	1.28	---	1.81	1.88	2.10	1.37	1.80	1.39	2.15
20	1.66	1.51	1.50	1.32	---	1.83	1.91	2.05	1.39	1.86	1.41	2.01
21	1.66	1.55	1.47	1.38	---	1.83	1.95	2.08	1.43	1.74	1.43	1.97
22	1.66	1.34	1.49	1.43	---	1.85	1.97	2.06	1.44	1.64	1.47	1.97
23	1.64	1.26	1.47	1.46	---	1.82	2.00	1.77	1.48	1.68	1.48	1.94
24	1.60	1.20	1.47	1.49	---	1.81	2.03	1.44	1.50	1.69	2.00	1.90
25	1.60	1.22	1.47	1.50	---	1.84	2.07	1.38	1.52	1.67	1.95	1.90
26	1.59	1.25	1.48	1.48	---	1.88	2.08	1.34	1.57	1.68	1.94	1.94
27	1.63	1.30	1.52	---	---	1.89	2.12	1.22	1.63	1.69	1.93	1.97
28	1.66	1.29	1.56	---	---	1.90	2.12	1.32	1.66	1.59	1.95	2.02
29	1.62	1.26	1.58	---	1.61	1.74	2.05	1.37	1.66	1.52	1.95	2.06
30	1.60	1.29	1.58	---	---	1.75	2.04	1.43	1.64	1.53	1.94	2.09
31	1.56	---	1.58	---	---	1.75	---	1.49	---	1.54	1.94	---
MEAN	1.59	1.37	1.40	1.28	1.61	1.73	1.88	1.91	1.41	1.76	1.56	2.02

WTR YR 1992 MEAN 1.63 HIGHEST 0.64 JAN. 8, 1992 LOWEST 2.28 MAY 16, 1992



## GROUND-WATER RECORDS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182623066111000. Local number, 218.

LOCATION.--Lat 18°26'23", long 66°11'10", Hydrologic Unit 21010005, 3.30 mi northwest of Bayamón plaza, 1.78 mi south of Hwy 165 km 26.5, and 2.38 mi northeast of Hwy 2 km 16.2. Owner: P.R. Aqueduct and Sewer Authority, Name: Levittown No. 7.

AQUIFER.--Alluvial deposits-Aymamín Limestone.

WELL CHARACTERISTICS.--Drilled water-table well.

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land surface datum is about 10.0 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Hole on pump base, 1.55 ft (0.47 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

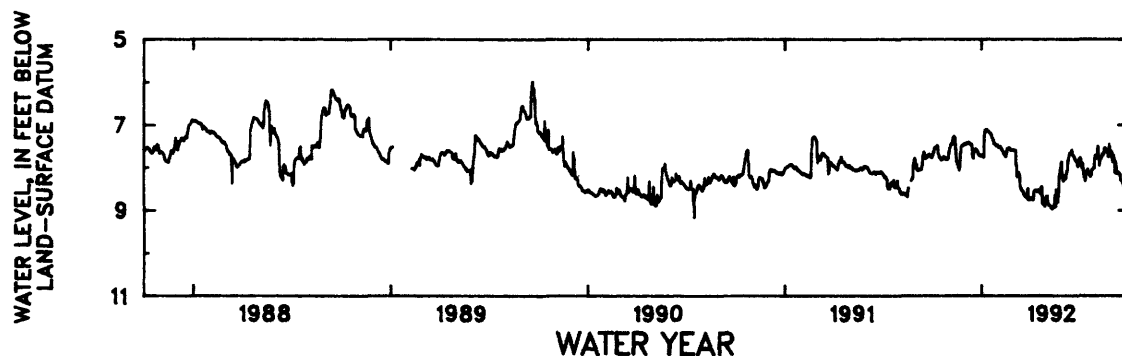
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.94 ft (1.81 m) below land-surface datum, Sept. 20, 1989; lowest water level recorded, 9.77 ft (2.98 m) below land-surface datum, Mar. 23, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.76	7.67	7.46	7.73	7.51	7.60	8.71	8.67	8.31	7.77	7.72	7.70
2	7.71	7.61	7.46	7.72	7.53	7.60	8.72	8.67	8.22	7.80	7.73	7.79
3	7.66	7.52	7.43	7.74	7.52	7.60	8.72	8.87	8.24	7.90	7.49	7.86
4	7.64	7.49	7.42	7.75	7.51	7.60	8.74	8.88	8.26	7.99	7.77	8.14
5	7.58	7.46	7.42	7.76	7.51	7.94	8.75	8.88	8.25	8.02	7.82	7.86
6	7.53	7.44	7.42	7.37	7.54	8.05	8.75	8.89	8.12	7.89	7.95	8.12
7	7.53	7.46	7.43	7.14	7.57	8.22	8.55	8.90	8.10	8.07	7.83	8.15
8	7.53	7.45	7.41	7.11	7.59	8.11	8.54	8.94	8.05	8.18	7.80	8.14
9	7.53	7.29	7.44	7.16	7.60	8.12	8.53	8.91	7.83	8.25	7.78	8.11
10	7.48	7.29	7.43	7.12	7.63	8.14	8.52	8.96	7.78	8.23	7.76	8.13
11	7.49	7.27	7.43	7.10	7.67	8.18	8.53	8.95	7.70	8.32	7.69	8.13
12	7.56	7.34	7.46	7.14	7.67	8.20	8.55	8.94	7.65	8.12	7.69	8.16
13	7.68	7.31	7.45	7.13	7.71	8.48	8.56	8.90	7.67	8.10	7.70	8.18
14	7.73	7.57	7.48	7.15	7.72	8.48	8.54	8.90	7.67	8.07	7.67	8.29
15	7.76	7.77	7.72	7.16	7.74	8.53	8.52	8.91	7.68	8.04	7.56	8.30
16	7.77	7.86	7.76	7.18	7.71	8.53	8.53	8.64	7.58	8.14	7.54	8.31
17	7.80	7.92	7.78	7.19	7.58	8.55	8.54	8.91	7.69	8.16	7.55	8.33
18	7.82	7.95	7.58	7.20	7.55	8.58	8.57	8.51	7.71	8.15	7.59	8.37
19	7.81	8.00	7.58	7.23	7.56	8.61	8.59	8.66	7.73	8.18	7.60	8.42
20	7.79	7.89	7.59	7.28	7.54	8.64	8.62	8.78	7.75	8.21	7.64	8.41
21	7.79	8.07	7.56	7.30	7.57	8.65	8.44	8.81	7.78	8.19	7.59	8.43
22	7.80	7.96	7.60	7.35	7.56	8.68	8.44	8.72	7.82	8.09	7.74	8.45
23	7.74	7.66	7.58	7.37	7.55	8.69	8.85	8.42	7.84	8.06	7.74	8.44
24	7.78	7.56	7.60	7.45	7.60	8.69	8.70	8.19	7.86	8.04	7.44	8.39
25	7.77	7.48	7.62	7.44	7.59	8.69	8.88	8.10	7.87	8.03	7.56	8.37
26	7.77	7.48	7.67	7.45	7.59	8.72	8.90	8.05	7.92	8.01	7.60	8.38
27	7.78	7.49	7.70	7.46	7.59	8.48	8.83	7.92	7.95	8.01	7.64	8.40
28	7.81	7.48	7.71	7.48	7.59	8.77	8.77	7.86	7.98	7.77	7.63	8.45
29	7.79	7.45	7.72	7.50	7.58	8.75	8.75	8.11	7.81	7.72	7.66	8.56
30	7.80	7.44	7.71	7.47	---	8.74	8.68	8.23	7.78	7.78	7.87	8.56
31	7.79	---	7.73	7.50	---	8.74	---	8.30	---	7.74	7.88	---
MEAN	7.70	7.59	7.56	7.36	7.59	8.37	8.64	8.63	7.89	8.03	7.68	8.24

WTR YR 1992 MEAN 7.94 HIGHEST 7.08 JAN, 11-13, 1992 LOWEST 8.99 MAY 7, 1992



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182441066082600. Local number, 219.

LOCATION.--Lat 18°24'41", long 66°08'26", Hydrologic Unit 21010005, 0.47 mi west of Fort Buchanan Military Res. main gate, 1.74 mi northeast of Bayamón plaza, and 1.88 mi southwest of P.R. National Cemetery. Owner: U.S. Department of Defense, Name: Ft. Buchanan No. 1, Buchanan Park well.

AQUIFER.--Cibao Formation.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 10 in (0.25 m), cased 10 in (0.25 m) 0-270 ft (0-82.3 m), perforated 46-685 ft (14.0-20.7 m), 88-120 ft (26.8-36.6 m), 160-191 ft (48.8-58.2 m), 240-270 ft (73.2-82.3 m). Depth 270 ft (82.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 66.0 ft (20.1 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 0.75 ft (0.23 m) above land-surface datum. Prior June 30, 1986, top of shelter floor, 3.59 ft (1.09 m) above land-surface datum.

REMARKS.--Recording observation well.

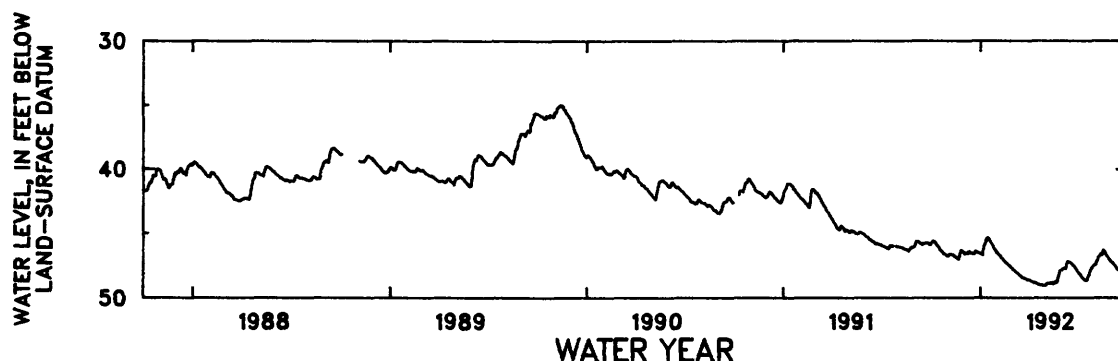
PERIOD OF RECORD.--December 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.97 ft (10.66 m) below land-surface datum, Nov. 12-14 1989; lowest water level recorded, 49.02 ft (14.9 m) below land-surface datum, Apr. 26-28, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45.77	46.76	46.49	46.57	46.46	47.80	48.60	49.01	47.77	48.02	47.40	47.20
2	45.72	46.74	46.54	46.56	46.52	47.82	48.62	48.99	47.71	48.06	47.40	47.22
3	45.65	46.67	46.58	46.62	46.59	47.83	48.63	48.91	47.69	48.11	47.23	47.27
4	45.61	46.62	46.53	46.65	46.65	47.86	48.67	48.86	47.68	48.16	47.08	47.35
5	45.59	46.60	46.50	46.68	46.69	47.93	48.68	48.86	47.68	48.20	47.04	47.40
6	45.58	46.61	46.49	46.18	46.70	47.96	48.71	48.85	47.70	48.29	46.91	47.45
7	45.60	46.63	46.50	45.95	46.76	48.00	48.74	48.86	47.72	48.36	46.79	47.50
8	45.66	46.65	46.52	45.84	46.85	48.03	48.74	48.84	47.51	48.41	46.75	47.57
9	45.72	46.63	46.47	45.79	46.92	48.05	48.75	48.85	47.29	48.44	46.70	47.63
10	45.77	46.63	46.40	45.61	46.94	48.07	48.77	48.84	47.21	48.50	46.67	47.72
11	45.83	46.64	46.37	45.48	46.97	48.11	48.79	48.81	47.15	48.51	46.59	47.76
12	45.88	46.67	46.50	45.38	47.03	48.17	48.80	48.80	47.16	48.57	46.57	47.80
13	45.95	46.70	46.50	45.33	47.07	48.23	48.85	48.79	47.18	48.61	46.59	47.81
14	45.98	46.77	46.49	45.31	47.12	48.26	48.83	48.83	47.20	48.63	46.63	47.82
15	46.02	46.81	46.49	45.34	47.18	48.28	48.85	48.90	47.22	48.64	46.39	47.89
16	46.10	46.83	46.47	45.42	47.22	48.32	48.88	48.89	47.24	48.63	46.27	47.94
17	46.19	46.87	46.48	45.50	47.25	48.36	48.94	48.83	47.28	48.59	46.31	47.98
18	46.24	46.89	46.52	45.54	47.27	48.42	48.94	48.76	47.32	48.41	46.37	47.98
19	46.30	46.94	46.53	45.61	47.33	48.43	48.94	48.74	47.34	48.27	46.42	47.99
20	46.34	46.95	46.56	45.67	47.37	48.41	48.94	48.77	47.39	48.22	46.51	47.96
21	46.40	46.98	46.55	45.74	47.41	48.43	48.97	48.80	47.47	48.18	46.63	47.94
22	46.43	46.89	46.45	45.83	47.43	48.49	48.99	48.77	47.49	47.96	46.69	47.91
23	46.47	46.71	46.36	45.90	47.47	48.49	49.00	48.72	47.52	47.82	46.76	47.84
24	46.53	46.51	46.40	45.99	47.52	48.52	48.99	48.45	47.56	47.73	46.79	47.73
25	46.58	46.34	46.42	46.05	47.55	48.52	48.98	48.31	47.61	47.66	46.85	47.69
26	46.55	46.29	46.45	46.17	47.60	48.54	49.01	48.20	47.71	47.58	46.93	47.66
27	46.58	46.33	46.48	46.23	47.64	48.57	49.02	47.98	47.77	47.58	47.00	47.75
28	46.63	46.35	46.47	46.27	47.67	48.60	49.01	47.86	47.84	47.50	47.03	47.81
29	46.68	46.39	46.49	46.31	47.69	48.58	49.01	47.84	47.91	47.41	47.10	47.85
30	46.69	46.43	46.53	46.47	---	48.58	49.01	47.84	47.97	47.41	47.15	---
31	46.75	---	46.54	46.41	---	48.58	---	47.83	---	47.41	47.19	---
MEAN	46.12	46.66	46.49	45.95	47.13	48.27	48.86	48.63	47.51	48.12	46.80	47.70

WTR YR 1992 MEAN 47.35 HIGHEST 45.30 JAN. 14, 1992 LOWEST 49.02 APR. 26-28, 1992



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182413066044000. Local number, 220.

LOCATION.--Lat 18°24'13", long 66°04'40", Hydrologic Unit 21010005, 3.85 mi southeast of Cataño plaza, 0.86 mi east of Escuela Gabriela Mistral, and 1.26 mi south of Nemesio Canales Public Housing. Owner: P.R. Aqueduct and Sewer Authority, Name: Parque San Luis Rey-Américo Miranda

AQUIFER.--Surficial Deposits-Cibao Formation.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in (0.25 m), cased 8 in (0.20 m) 0-166 ft (0-50.6 m), perforated 39-166 ft (11.9-50.6 m). Depth 166 ft (50.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 16.4 ft (5.0 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

PERIOD OF RECORD.--February 1986 to current year.

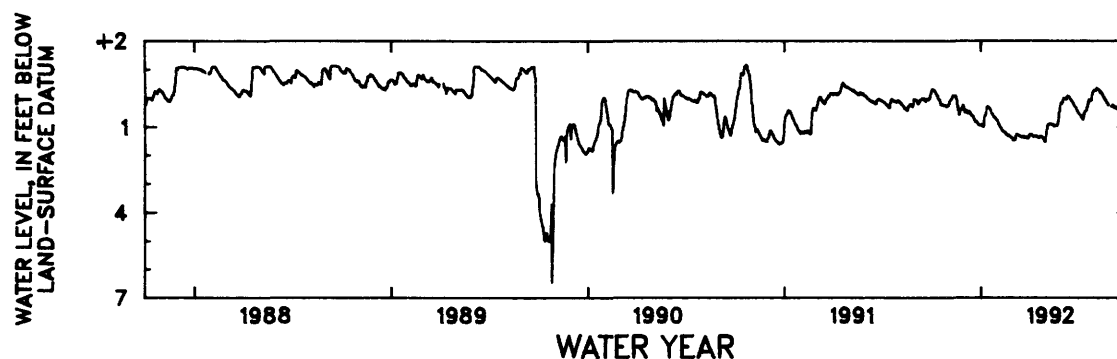
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +2.99 ft (+0.91 m) above land-surface datum, Feb. 6, May 8-9, 1986; lowest water level recorded, 6.48 ft (1.98 m) below land-surface datum, Oct. 26, 1989

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	+.30	.22	.44	.96	.84	1.48	1.26	1.20	.05	.57	+.30	.24
2	+.32	.19	.50	.92	.90	1.45	1.27	1.07	.00	.58	+.34	.28
3	+.29	.12	.49	.96	.92	1.47	1.26	.96	.00	.60	+.33	.27
4	+.28	.07	.45	.98	.96	1.45	1.29	.92	.02	.63	+.31	.34
5	+.28	.05	.44	1.00	1.01	1.33	1.32	.92	.01	.66	+.31	.33
6	+.25	.03	.46	.75	1.03	1.30	1.34	.90	.03	.70	+.29	.31
7	+.21	+.01	.51	.62	1.05	1.26	1.34	.89	.05	.74	+.26	.31
8	+.17	+.06	.53	.60	1.10	1.27	1.32	.89	+.04	.74	+.20	.32
9	+.14	+.09	.49	.59	1.14	1.27	1.33	.91	+.07	.62	+.17	.36
10	+.12	+.10	.47	.49	1.14	1.29	1.31	.91	+.06	.54	+.22	.40
11	+.07	+.08	.50	.32	1.15	1.30	1.32	.90	+.06	.49	+.18	.37
12	+.02	+.09	.54	.30	1.18	1.31	1.34	.90	+.04	.46	+.15	.44
13	.03	+.09	.58	.30	1.19	1.33	1.34	.90	+.01	.45	+.11	.42
14	.04	+.07	.61	.29	1.20	1.33	1.34	.92	.03	.43	+.06	.40
15	.04	+.02	.62	.31	1.20	1.33	1.36	.99	.04	.35	+.04	.38
16	.08	.05	.62	.34	1.26	1.36	1.38	.94	.07	.29	.00	.31
17	.21	.17	.65	.38	1.26	1.34	1.38	.97	.10	.24	.03	.19
18	.24	.31	.71	.41	1.28	1.36	1.38	.96	.13	.10	.07	.14
19	.23	.43	.74	.47	1.31	1.37	1.34	.96	.15	.06	.07	.12
20	.22	.51	.79	.51	1.30	1.33	1.33	.96	.19	.09	.12	.01
21	.22	.58	.82	.54	1.31	1.35	1.33	.96	.25	.09	.16	.03
22	.24	.43	.81	.58	1.29	1.38	1.35	.88	.27	.06	.18	.08
23	.26	.40	.80	.62	1.34	1.37	1.36	.80	.30	.06	.24	.04
24	.26	.40	.83	.66	1.33	1.38	1.37	.61	.32	.06	.24	.03
25	.27	.40	.87	.66	1.35	1.36	1.40	.50	.36	+.16	---	.04
26	.26	.35	.90	.68	1.37	1.38	1.43	.43	.40	+.20	---	.08
27	.26	.35	.92	.71	1.38	1.40	1.48	.24	.43	+.25	---	.13
28	.29	.24	.94	.72	1.41	1.40	1.51	.17	.47	+.26	---	.15
29	.29	.32	.94	.75	1.45	1.33	1.53	.17	.50	+.28	---	.18
30	.28	.38	.95	.76	---	1.29	1.30	.20	.55	+.27	.29	.20
31	.26	---	.95	.78	---	1.27	---	.16	---	+.26	.27	---
MEAN	.05	.18	.67	.61	1.19	1.35	1.35	.78	.15	.26	+.06	.23

WTR YR 1992 MEAN .57 HIGHEST +.34 OCT. 1, 1991 LOWEST 1.53 APR. 28, 1992

+ Above land-surface datum.



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182511066045401. Local number, PN-2.

LOCATION.--Lat 18°25'11, long 66°04'54", Hydrologic Unit 21010005, 1.58 mi northeast of Fort Buchanan Military Res. main gate, 2.95 mi southeast of Cataño plaza, and 2.45 mi southeast of U.S. Naval Reservation in Miramar.

Owner: U.S. Geological Survey, WRD, Name: La Esperanza No. 2.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-40 ft (0-12.2 m), perforated 30-40 ft (9.15-12.2 m). Depth 40 ft (12.2 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.17 ft (0.97 m) above land-surface datum.

REMARKS.--Recording observation well.

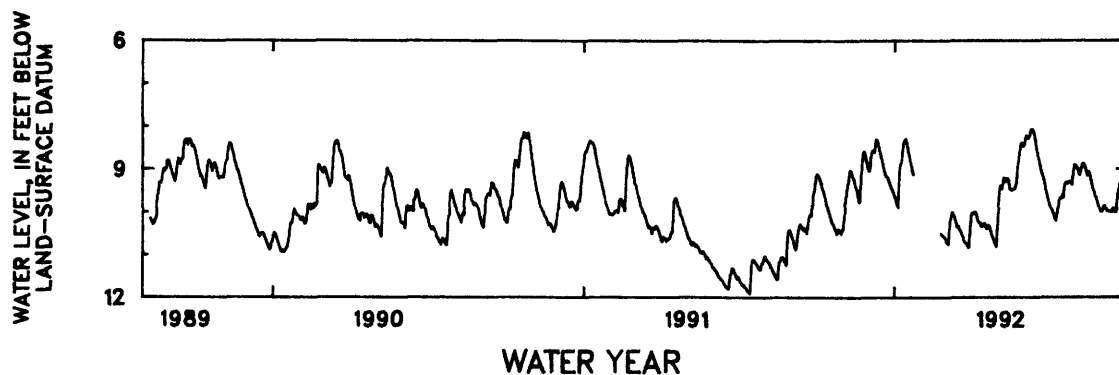
PERIOD OF RECORD.--July 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.07 ft (2.46 m) below land-surface datum, June 8-10, 1992; lowest water level recorded, 11.90 ft (3.63 m) below land-surface datum, July 15-16, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.15	10.40	9.00	9.63	---	10.65	10.02	10.04	8.40	9.85	8.93	9.94
2	9.11	10.21	9.05	9.68	---	10.71	10.04	9.79	8.26	9.90	9.01	9.88
3	9.13	10.01	8.97	9.77	---	10.71	10.01	9.46	8.21	9.95	9.00	9.86
4	9.18	9.78	8.72	9.85	---	10.75	10.00	9.38	8.27	10.01	9.10	9.87
5	9.21	9.64	8.59	9.90	---	10.44	10.04	9.43	8.29	10.06	9.14	9.95
6	9.27	9.50	8.56	9.37	---	10.20	10.10	9.46	8.26	10.11	9.05	9.99
7	9.34	9.35	8.55	8.97	---	10.12	10.20	9.28	8.20	10.18	8.98	9.99
8	9.43	9.26	8.59	8.86	---	10.01	10.23	9.20	8.08	10.21	8.87	10.00
9	9.49	9.07	8.44	8.85	---	10.02	10.25	9.24	8.07	10.07	8.87	10.00
10	9.55	9.02	8.30	8.64	---	10.07	10.25	9.29	8.07	9.92	8.88	9.98
11	9.63	9.05	8.31	8.39	---	10.12	10.33	9.22	8.09	9.89	8.94	10.01
12	9.72	9.12	8.37	8.34	---	10.18	10.33	9.21	8.17	9.72	9.01	9.95
13	9.81	9.19	8.47	8.31	---	10.25	10.31	9.25	8.26	9.69	9.08	9.92
14	9.89	9.23	8.56	8.29	---	10.34	10.32	9.34	8.36	9.69	9.16	9.92
15	9.96	9.31	8.62	8.38	---	10.33	10.26	9.47	8.52	9.68	9.06	10.01
16	10.03	9.40	8.70	8.48	---	10.33	10.29	9.47	8.61	9.59	9.09	10.01
17	10.09	9.44	8.77	8.59	---	10.42	10.37	9.50	8.70	9.68	9.15	9.95
18	10.16	9.51	8.87	8.67	---	10.43	10.39	9.47	8.78	9.41	9.26	9.67
19	10.23	9.63	8.97	8.77	---	10.48	10.32	9.47	8.87	9.35	9.34	9.54
20	10.26	9.74	9.05	8.88	---	10.54	10.31	9.47	8.95	9.31	9.43	9.43
21	10.29	9.77	9.12	8.96	---	10.58	10.34	9.45	9.05	9.32	9.49	9.32
22	10.37	9.44	9.17	9.06	---	10.66	10.42	9.36	9.12	9.35	9.55	9.32
23	10.39	9.06	9.18	9.13	---	10.71	10.48	9.31	9.19	9.30	9.64	9.36
24	10.45	8.79	9.20	---	10.50	10.72	10.56	8.96	9.25	9.29	9.66	9.37
25	10.51	8.59	9.26	---	10.52	10.74	10.60	8.82	9.35	9.29	9.73	9.39
26	10.43	8.58	9.32	---	10.55	10.76	10.66	8.65	9.48	9.32	9.79	9.42
27	10.40	8.65	9.38	---	10.56	10.82	10.71	8.48	9.55	9.37	9.88	9.49
28	10.44	8.74	9.44	---	10.58	10.83	10.75	8.39	9.62	9.16	9.93	9.54
29	10.46	8.83	9.47	---	10.60	10.52	10.81	8.39	9.72	8.98	10.00	9.63
30	10.50	8.94	9.52	---	---	10.15	10.44	8.46	9.77	8.89	9.99	9.71
31	10.43	---	9.57	---	---	10.02	---	8.46	---	8.94	10.00	---
MEAN	9.91	9.31	8.91	8.95	10.55	10.44	10.34	9.20	8.72	9.60	9.32	9.75

WTR YR 1992 MEAN 9.53 HIGHEST 8.07 JUNE 8-10, 1992 LOWEST 10.87 MAR. 27-28, 1992





## GROUND-WATER LEVELS

499

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182435066052700. Local number, PN-5.

LOCATION.--Lat 18°24'35", long 66°05'27", Hydrologic Unit 21010005, 2.94 mi southeast of Cataño plaza, 0.44 mi north of Escuela Superior Gabriela Mistral, and 1.19 mi northeast of WAPA TV Radio Antenna. Owner: U.S. Geological Survey, WRD, Name: Salud Mental No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4.0 in (0.10 m), cased 4.0 in (0.10 m), 0-83 ft (0-25.3 m), perforated 73-83 ft (22.2-25.3 m). Depth 83 ft (25.3 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 85 ft (25.9 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 2.85 ft (0.87 m) above land-surface datum.

REMARKS.--Recording observation well.

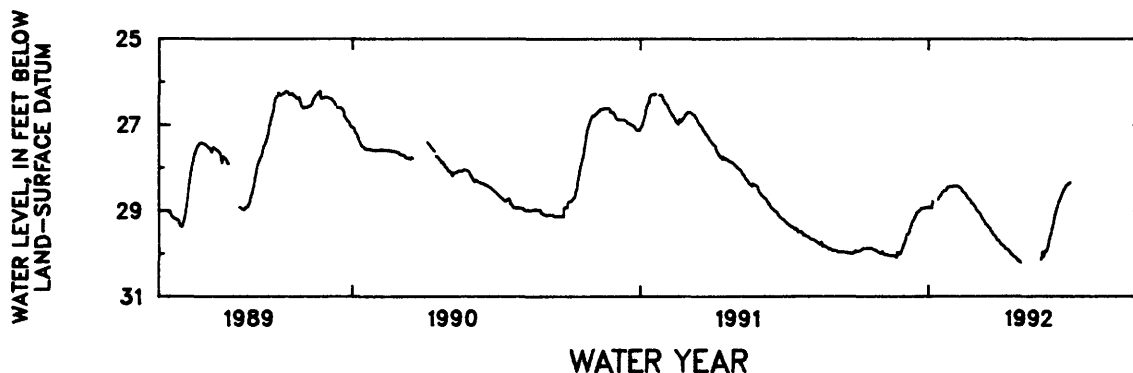
PERIOD OF RECORD.--April 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.20 ft (7.98 m) below land-surface datum, Nov. 21-22, 1989; lowest water level recorded, 30.23 ft (9.21 m) below land-surface datum, May 21, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.94	29.99	29.75	28.92	28.43	28.98	29.77	---	29.71	---	---	---
2	29.94	29.98	29.71	28.92	28.43	29.00	29.79	30.20	29.63	---	---	---
3	29.94	29.95	29.66	28.92	28.43	29.01	29.80	---	29.57	---	---	---
4	29.94	29.99	29.55	28.92	28.43	29.04	29.82	---	29.52	---	---	---
5	29.93	30.01	29.55	28.93	28.43	29.05	29.83	---	29.40	---	---	---
6	29.92	30.01	29.54	28.78	28.43	29.08	29.85	---	29.34	---	---	---
7	29.91	30.03	29.50	---	28.43	29.12	29.89	---	29.25	---	---	---
8	29.90	30.03	29.43	---	28.45	29.15	29.89	---	29.15	---	---	---
9	29.89	30.02	29.37	---	28.46	29.19	29.90	---	29.08	---	---	---
10	29.88	30.03	29.33	---	28.47	29.21	29.91	---	29.01	---	---	---
11	29.88	30.04	29.26	---	28.49	29.23	29.93	---	28.93	---	---	---
12	29.88	30.04	29.23	---	28.53	29.28	29.95	---	28.88	---	---	---
13	29.88	30.04	29.20	28.74	28.56	29.32	29.97	---	28.81	---	---	---
14	29.88	30.05	29.16	28.69	28.57	29.32	30.01	---	28.77	---	---	---
15	29.87	30.05	29.12	28.66	28.59	29.33	30.01	---	28.73	---	---	---
16	29.87	30.05	29.09	28.63	28.60	29.37	30.04	---	28.69	---	---	---
17	29.87	30.05	29.04	28.61	28.63	29.39	30.06	---	28.64	---	---	---
18	29.87	30.05	29.03	28.57	28.66	29.40	30.07	---	28.59	---	---	---
19	29.87	30.06	29.02	28.56	28.70	29.45	30.08	---	28.55	---	---	---
20	29.87	30.07	28.99	28.54	28.72	29.47	30.09	---	28.51	---	---	---
21	29.88	30.09	28.98	28.53	28.74	29.50	30.12	---	28.49	---	---	---
22	29.89	29.96	28.96	28.53	28.75	29.53	30.14	30.13	28.44	---	---	---
23	29.90	29.99	28.94	28.52	28.77	29.56	30.16	30.10	28.41	---	---	---
24	29.91	30.01	28.94	28.48	28.83	29.58	30.17	29.95	28.40	---	---	---
25	29.91	30.01	28.94	28.46	28.83	29.60	30.18	30.07	28.39	---	---	---
26	29.92	29.99	28.94	28.44	28.84	29.62	30.20	30.03	28.37	---	---	---
27	29.93	29.95	28.93	28.44	28.87	29.67	30.21	29.94	28.36	---	---	---
28	29.95	29.90	28.92	28.43	28.90	29.69	---	29.94	28.35	---	---	---
29	29.96	29.86	28.92	28.44	28.92	29.69	---	29.94	---	---	---	---
30	29.97	29.79	28.92	28.44	---	29.71	---	29.88	---	---	---	---
31	29.98	---	28.92	28.44	---	29.74	---	29.82	---	---	---	---
MEAN	29.91	30.00	29.19	28.62	28.62	29.36	29.99	30.00	28.86	---	---	---

WTR YR 1992 MEAN 29.36 HIGHEST 28.35 JUNE 28, 1992 LOWEST 30.23 MAY 21, 1992



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182445066043401. Local number, PN-6.

LOCATION.--Lat 18°24'45", long 66°04'34", Hydrologic Unit 21010005, 0.28 mi northeast of Escuela Dr. Pedreira, 3.52 mi southeast of Cataño plaza, and 0.53 mi south of Hiram Bithorn Stadium main gate. Owner: U.S. Geological Survey, WRD, Name: Alsacia No. 2.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-27 ft (0-8.23 m), perforated 21-27 ft (6.40-8.23 m). Depth 27 ft (8.23 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 10 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.03 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well. Destroyed by Municipality employee with heavy equipment.

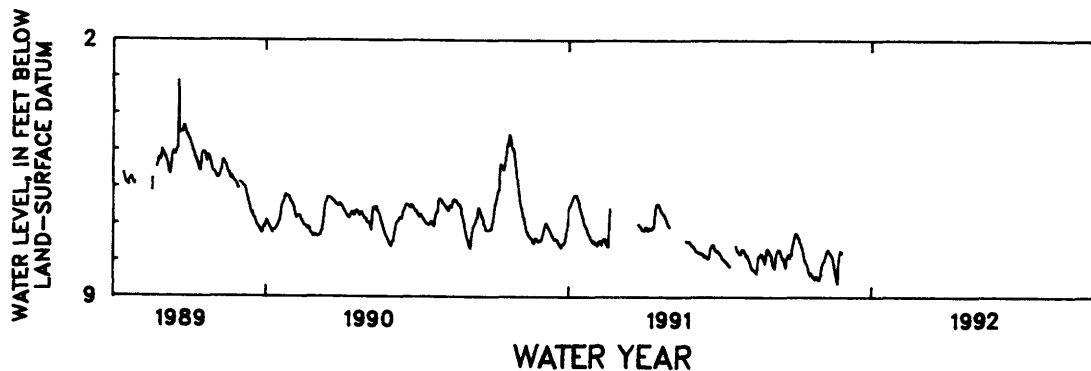
PERIOD OF RECORD.--July 1989 to November 27, 1991, temporary discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.11 ft (0.95 m) below land-surface datum, Sept. 18, 1989; lowest water level recorded, 8.70 ft (2.65 m) below land-surface datum, Nov. 21, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.29	8.38	---	---	---	---	---	---	---	---	---	---
2	7.26	8.22	---	---	---	---	---	---	---	---	---	---
3	7.26	8.10	---	---	---	---	---	---	---	---	---	---
4	7.33	8.04	---	---	---	---	---	---	---	---	---	---
5	7.37	8.01	---	---	---	---	---	---	---	---	---	---
6	7.41	7.93	---	---	---	---	---	---	---	---	---	---
7	7.50	7.87	---	---	---	---	---	---	---	---	---	---
8	7.54	7.77	---	---	---	---	---	---	---	---	---	---
9	7.62	7.72	---	---	---	---	---	---	---	---	---	---
10	7.68	7.70	---	---	---	---	---	---	---	---	---	---
11	7.79	7.76	---	---	---	---	---	---	---	---	---	---
12	7.89	7.78	---	---	---	---	---	---	---	---	---	---
13	8.00	7.83	---	---	---	---	---	---	---	---	---	---
14	8.04	7.86	---	---	---	---	---	---	---	---	---	---
15	8.10	7.91	---	---	---	---	---	---	---	---	---	---
16	8.11	7.99	---	---	---	---	---	---	---	---	---	---
17	8.21	8.11	---	---	---	---	---	---	---	---	---	---
18	8.34	8.25	---	---	---	---	---	---	---	---	---	---
19	8.40	8.39	---	---	---	---	---	---	---	---	---	---
20	8.34	8.54	---	---	---	---	---	---	---	---	---	---
21	8.34	8.62	---	---	---	---	---	---	---	---	---	---
22	8.42	8.29	---	---	---	---	---	---	---	---	---	---
23	8.46	8.01	---	---	---	---	---	---	---	---	---	---
24	8.49	7.80	---	---	---	---	---	---	---	---	---	---
25	8.52	7.74	---	---	---	---	---	---	---	---	---	---
26	8.43	7.75	---	---	---	---	---	---	---	---	---	---
27	8.44	7.79	---	---	---	---	---	---	---	---	---	---
28	8.51	---	---	---	---	---	---	---	---	---	---	---
29	8.52	---	---	---	---	---	---	---	---	---	---	---
30	8.53	---	---	---	---	---	---	---	---	---	---	---
31	8.43	---	---	---	---	---	---	---	---	---	---	---
MEAN	8.02	8.01	---	---	---	---	---	---	---	---	---	---

WTR YR 1992 MEAN 8.01 HIGHEST 7.26 OCT. 2-3, 1991 LOWEST 8.70 NOV. 21, 1991



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182437066040500. Local number, PN-7.

LOCATION.--Lat 18°24'37", long 66°04'05", Hydrologic Unit 21010005, 4.03 mi southeast of Cataño plaza, 0.70 mi east of Escuela Dr. Pedreira, and 0.25 southeast of Hospital del Maestro. Owner: U.S. Geological Survey, WRD,

Name: Parque de las Fuentes No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-52 ft (0-15.8 m), perforated 42-52 ft (12.8-15.8 m). Depth 52 ft (15.8 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 23 ft (7.01 m) above mean sea level, from levels.

Measuring point: Hole on well shelter floor, 3.20 ft (0.98 m) above land-surface datum.

REMARKS.--Recording observation well. Formerly published as 182437066040501, Parque de las Fuentes No. 2, which is another well.

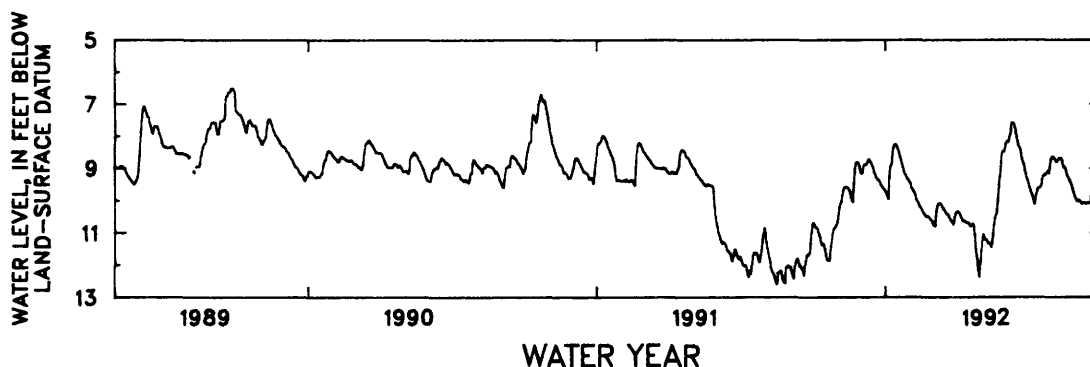
PERIOD OF RECORD.--February 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.50 ft (1.98 m) below land-surface datum, Sept. 27, 1989; lowest water level recorded, 12.60 ft (3.84 m) below land-surface datum, Aug. 16-17, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.69	10.71	9.13	9.74	9.45	10.72	10.34	11.64	8.31	9.57	8.65	10.01
2	10.69	10.54	9.16	9.77	9.48	10.76	10.35	11.37	8.18	9.64	8.69	9.99
3	10.76	10.37	9.16	9.83	9.62	10.78	10.36	11.12	8.16	9.72	8.72	10.00
4	10.82	10.20	8.99	9.90	9.66	10.80	10.40	11.04	8.19	9.79	8.77	10.04
5	10.85	10.10	8.90	9.95	9.69	10.45	10.47	11.15	8.18	9.87	8.81	10.08
6	10.85	10.03	8.88	9.31	9.74	10.26	10.54	11.22	8.01	9.96	8.78	10.10
7	10.89	9.92	8.89	8.97	9.78	10.15	10.60	11.21	7.93	10.04	8.74	10.07
8	11.00	9.80	8.89	8.89	9.87	10.09	10.62	11.21	7.65	10.10	8.70	10.07
9	11.09	9.67	8.84	8.87	9.96	10.09	10.65	11.28	7.59	9.94	8.69	10.07
10	11.15	9.59	8.75	8.60	10.00	10.08	10.64	11.33	7.59	9.82	8.69	10.08
11	11.30	9.58	8.72	8.35	10.05	10.10	10.66	11.33	7.59	9.72	8.69	10.10
12	11.37	9.59	8.72	8.29	10.11	10.14	10.67	11.34	7.63	9.62	8.78	10.08
13	11.37	9.58	8.79	8.26	10.16	10.20	10.69	11.38	7.75	9.62	8.89	10.07
14	11.34	9.59	8.83	8.25	10.21	10.26	10.69	11.45	7.87	9.61	8.98	10.07
15	11.41	9.62	8.92	8.27	10.23	10.26	10.69	11.29	8.02	9.59	8.97	10.09
16	11.50	9.67	8.95	8.33	10.28	10.31	10.74	11.10	8.14	9.56	9.00	10.08
17	11.65	9.73	9.02	8.41	10.34	10.38	10.78	10.82	8.21	9.52	9.08	10.03
18	11.79	9.82	9.13	8.48	10.37	10.39	10.79	10.66	8.31	9.32	9.19	9.76
19	11.84	9.92	9.18	8.57	10.41	10.43	10.77	10.54	8.36	9.24	9.27	9.65
20	11.82	9.99	9.26	8.67	10.45	10.44	10.73	10.45	8.40	9.24	9.31	9.54
21	11.86	10.03	9.32	8.75	10.49	10.48	10.73	10.39	8.53	9.21	9.38	9.50
22	11.86	9.57	9.36	8.86	10.50	10.55	10.82	10.07	8.68	9.19	9.38	9.50
23	11.59	9.20	9.37	8.95	10.49	10.60	11.16	9.87	8.78	9.16	9.47	9.53
24	11.39	8.94	9.37	9.05	10.49	10.63	11.47	9.41	8.86	9.13	9.53	9.54
25	11.19	8.83	9.43	9.15	10.52	10.65	11.69	9.26	8.93	9.09	9.64	9.58
26	11.01	8.81	9.51	9.19	10.56	10.70	11.88	9.12	9.11	9.07	9.73	9.66
27	10.92	8.81	9.55	9.22	10.59	10.75	12.02	8.62	9.18	9.15	9.79	9.74
28	10.86	8.85	9.59	9.29	10.62	10.63	12.26	8.51	9.29	8.91	9.86	9.80
29	10.83	8.93	9.62	9.34	10.65	10.48	12.38	8.47	9.38	8.72	9.93	9.89
30	10.81	9.06	9.65	9.34	---	10.39	11.88	8.47	9.47	8.66	9.99	9.96
31	10.75	---	9.68	9.41	---	10.36	---	8.47	---	8.64	10.02	---
MEAN	11.20	9.63	9.15	8.98	10.16	10.43	10.95	10.44	8.34	9.43	9.17	9.89

WTR YR 1992 MEAN 9.81 HIGHEST 7.59 JUNE 9-12, 1992 LOWEST 12.40 APR. 29, 1992



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182443066041502. Local number, PN-8c.

LOCATION.--Lat 18°24'43", long 66°04'15", Hydrologic Unit 21010005, 2.29 mi east of Fort Buchanan Military Res. main gate, 3.83 mi southeast of Cataño plaza, and 0.16 mi southwest of Hospital del Maestro. Owner: U.S. Geological Survey, WRD, Name: Parque Luis Muñoz Marín 1C.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10), 0-33 ft (0-10.1 m), perforated 33-40 ft (10.1-12.2 m). Depth 40 ft (12.2 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.66 ft (1.12 m) above land-surface datum.

REMARKS.--Recording observation well.

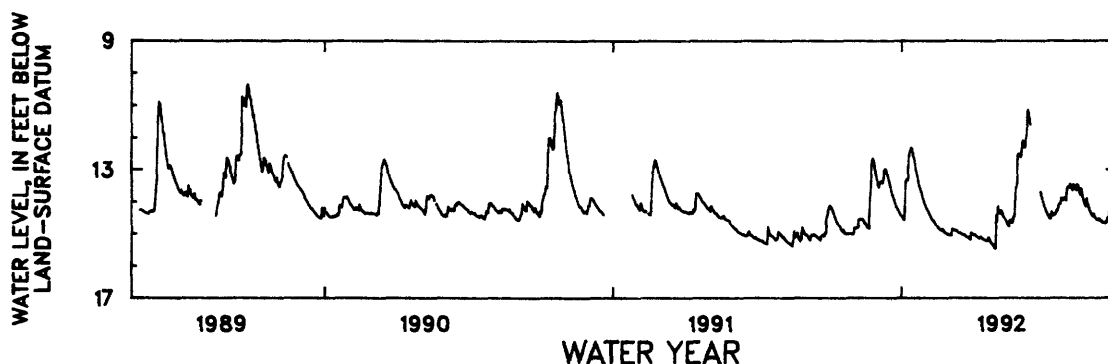
PERIOD OF RECORD.--February 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.35 ft (3.15 m) below land-surface datum, Sept. 25, 1989; lowest water level recorded, 15.46 ft (4.71 m) below land-surface datum, Apr. 28-29, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.16	15.00	13.34	14.45	14.17	15.05	15.03	14.65	12.32	14.22	13.45	14.46
2	14.12	14.80	13.49	14.47	14.24	15.05	15.04	14.13	12.07	14.29	13.54	14.50
3	14.15	14.82	13.55	14.51	14.26	15.05	15.04	14.26	12.13	14.34	13.57	14.54
4	14.19	14.82	13.46	14.55	14.32	15.06	15.07	14.31	12.25	14.40	13.65	14.57
5	14.23	14.81	13.38	14.57	14.37	14.85	15.09	14.38	12.31	14.43	13.46	14.58
6	14.30	14.79	13.36	13.30	14.42	14.88	15.11	14.28	12.10	14.48	13.56	14.57
7	14.38	14.77	13.39	13.30	14.46	14.87	15.13	14.34	11.92	14.53	13.59	14.53
8	14.45	14.56	13.41	13.30	14.52	14.89	15.14	14.40	11.34	14.52	13.60	14.59
9	14.50	14.55	13.28	13.33	14.57	14.90	15.13	14.48	11.11	14.31	13.64	14.61
10	14.56	14.55	13.05	12.71	14.58	14.90	15.09	14.49	11.25	14.43	13.46	14.65
11	14.63	14.55	12.99	12.46	14.61	14.91	15.13	14.55	11.38	14.41	13.50	14.63
12	14.68	14.55	12.98	12.37	14.65	14.95	15.14	14.58	11.58	14.41	13.64	14.67
13	14.74	14.55	13.05	12.31	14.70	14.97	15.17	14.64	---	14.41	13.71	14.67
14	14.75	14.57	13.14	12.34	14.73	14.97	15.19	14.72	---	14.36	13.79	14.66
15	14.79	14.64	13.26	12.46	14.77	14.97	15.19	14.76	---	14.28	13.58	14.68
16	14.86	14.67	13.36	12.59	14.80	14.99	15.21	14.78	---	14.29	13.72	14.66
17	14.89	14.72	13.46	12.66	14.83	15.02	15.23	14.58	---	14.21	13.88	14.60
18	14.93	14.76	13.56	12.83	14.85	15.02	15.23	14.65	---	14.10	13.96	14.50
19	14.87	14.80	13.67	13.00	14.87	15.03	15.21	14.57	---	14.07	14.04	14.50
20	14.95	14.82	13.79	13.11	14.89	15.03	15.11	14.59	---	14.06	14.10	14.27
21	14.99	14.83	13.80	13.25	14.90	15.05	15.16	14.66	---	13.88	14.15	14.29
22	15.01	13.97	13.90	13.37	14.85	15.08	15.22	14.48	---	13.94	13.89	14.33
23	15.01	13.55	13.95	13.50	14.91	15.10	15.28	14.43	---	13.95	14.08	14.34
24	15.01	12.97	14.06	13.59	14.93	15.11	15.30	13.62	---	13.93	14.11	14.22
25	15.01	12.66	14.13	13.66	14.97	15.11	15.33	13.54	13.71	13.89	14.20	14.33
26	15.00	12.64	14.18	13.72	14.98	15.14	15.38	13.43	13.83	13.92	14.29	14.39
27	15.00	12.74	14.23	13.83	15.00	15.16	15.41	12.52	13.92	13.97	14.34	14.46
28	15.01	12.90	14.28	13.92	15.01	15.19	15.45	12.50	14.01	13.61	14.39	14.50
29	15.01	13.05	14.32	13.99	15.03	14.96	15.46	12.54	14.09	13.55	14.44	14.53
30	15.02	13.22	14.37	14.05	---	15.01	14.41	12.58	14.15	13.53	14.46	14.56
31	14.99	---	14.42	14.12	---	15.02	---	12.60	---	13.55	14.38	---
MEAN	14.72	14.22	13.63	13.41	14.70	15.01	15.17	14.10	12.53	14.14	13.88	14.51

WTR YR 1992 MEAN 14.22 HIGHEST 11.04 JUNE 8-9, 1992 LOWEST 15.46 APR. 28-29, 1992



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182417066042700. Local number, PN-10.

LOCATION.--Lat 18°24'17", long 66°04'27", Hydrologic Unit 21010005, 3.96 mi southeast of Cataño plaza, 1.00 mi southwest of Escuela J. J. Osuna, and 2.26 mi east of WAPA TV Radio Anthenna. Owner: U.S. Geological Survey, WRD, Name: Las Americas No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, cased 4.0 in (0.10 m), 0-80 ft (0-24.39 m), 4.0 in (0.10 m), perforated pipe 80-90 ft (24.39-27.43 m). Depth 90 ft (27.43 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 16 ft (4.89 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.10 ft (0.95 m) above land-surface datum.

REMARKS.--Recording observation well.

PERIOD OF RECORD.--October 1989 to current year.

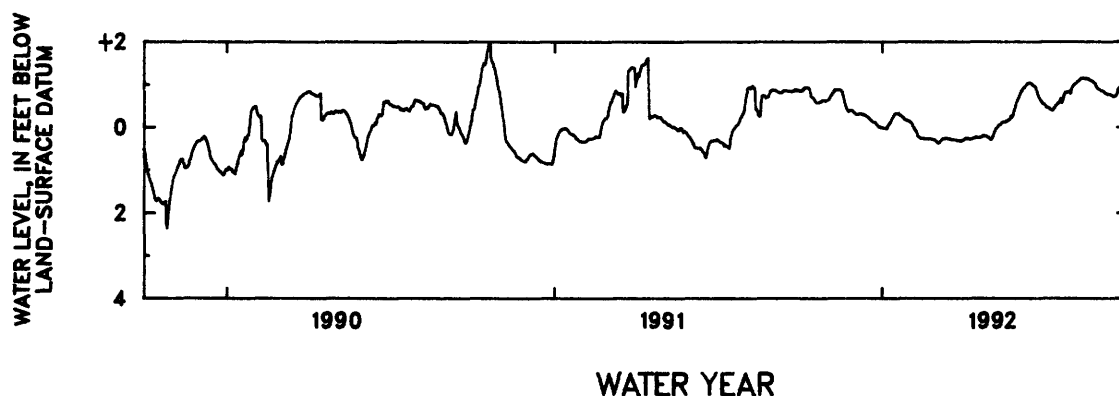
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +2.04 ft (+0.62 m) above land-surface datum, Oct. 22, 1990; lowest water level recorded, 2.48 ft (0.76 m) below land-surface datum, Oct. 26-27, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	+.85	+.63	+.33	.01	+.12	.33	.28	.28	+.74	+.47	+.99	+.85
2	+.85	+.65	+.31	.02	+.10	.36	.26	.25	+.79	+.46	+1.01	+.85
3	+.86	+.69	+.30	.02	+.07	.37	.25	.20	+.84	+.46	+1.03	+.82
4	+.87	+.73	+.30	.02	+.02	.37	.25	.13	+.86	+.45	+1.05	+.80
5	+.90	+.76	+.31	.02	.02	.34	.25	.07	+.90	+.43	+1.07	+.79
6	+.92	+.80	+.31	.03	.06	.31	.26	.04	+.93	+.41	+1.08	+.78
7	+.93	+.82	+.32	+.02	.08	.29	.27	.01	+.93	+.40	+1.10	+.77
8	+.93	+.85	+.31	+.07	.12	.27	.28	+.01	+.97	+.39	+1.13	+.77
9	+.93	+.88	+.30	+.09	.20	.26	.28	+.05	+1.00	+.42	+1.15	+.77
10	+.93	+.87	+.29	+.13	.22	.26	.26	+.06	+1.02	+.46	+1.15	+.76
11	+.92	+.87	+.30	+.18	.23	.25	.25	+.07	+1.03	+.50	+1.15	+.75
12	+.89	+.87	+.28	+.22	.25	.25	.24	+.09	+1.04	+.52	+1.15	+.74
13	+.72	+.88	+.28	+.26	.26	.26	.24	+.12	+1.04	+.54	+1.15	+.72
14	+.70	+.87	+.26	+.30	.26	.27	.23	+.13	+1.03	+.56	+1.14	+.71
15	+.69	+.88	+.25	+.32	.26	.27	.23	+.13	+1.02	+.59	+1.14	+.71
16	+.67	+.87	+.23	+.33	.27	.27	.23	+.13	+.99	+.63	+1.14	+.73
17	+.64	+.82	+.21	+.33	.27	.28	.24	+.13	+.98	+.67	+1.14	+.76
18	+.60	+.73	+.19	+.33	.27	.29	.24	+.15	+.96	+.57	+1.12	+.82
19	+.58	+.65	+.17	+.32	.27	.29	.23	+.16	+.95	+.63	+1.10	+.88
20	+.57	+.56	+.14	+.29	.27	.29	.22	+.18	+.91	+.70	+1.09	+.91
21	+.57	+.49	+.13	+.27	.27	.29	.21	+.18	+.79	+.78	+1.08	+.94
22	+.57	+.43	+.12	+.26	.27	.29	.19	+.23	+.72	+.82	+1.07	+.96
23	+.59	+.39	+.12	+.24	.27	.30	.20	+.27	+.69	+.82	+1.05	+.97
24	+.60	+.37	+.11	+.23	.27	.31	.20	+.23	+.66	+.82	+1.03	+.99
25	+.61	+.38	+.08	+.19	.28	.31	.20	+.30	+.62	+.83	+1.01	+.99
26	+.63	+.40	+.06	+.18	.28	.31	.21	+.39	+.59	+.83	+.95	+.99
27	+.63	+.40	+.03	+.17	.29	.31	.23	+.45	+.56	+.83	+.92	+.97
28	+.63	+.39	+.01	+.16	.30	.33	.24	+.53	+.54	+.79	+.90	+.95
29	+.62	+.37	.00	+.15	.30	.33	.25	+.60	+.53	+.87	+.88	+.92
30	+.62	+.34	.00	+.15	---	.30	.28	+.64	+.50	+.92	+.87	+.89
31	+.63	---	.01	+.14	---	.29	---	+.69	---	+.96	+.85	---
MEAN	+.73	+.65	+.19	+.17	.19	.30	.24	+.16	+.84	+.63	+1.05	+.84

WTR YR 1992 MEAN +.38 HIGHEST +1.15 AUG. 9-13, 1992 LOWEST .37 MAR. 3-4, 1992

+ Above land-surface datum



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182349066032600. Local number, PN-13.

LOCATION.--Lat 18°23'49", long 66°03'26", Hydrologic Unit 21010005, 5.15 mi southeast of Cataño plaza, 1.28 mi south of Escuela J. J. Osuna, and 0.69 mi southwest of University of Puerto Rico main gate. Owner: U.S. Geological Survey, WRD, Name: Jardín Botánico No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m) cased 4.0 in (0.10 m), 0-45 ft (0-13.72 m), perforated 35-45 ft (10.67-13.72 m). Depth 45 ft (13.72 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 32 ft (9.75 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 2.84 ft (0.86 m) above land-surface datum.

REMARKS.--Recording observation well.

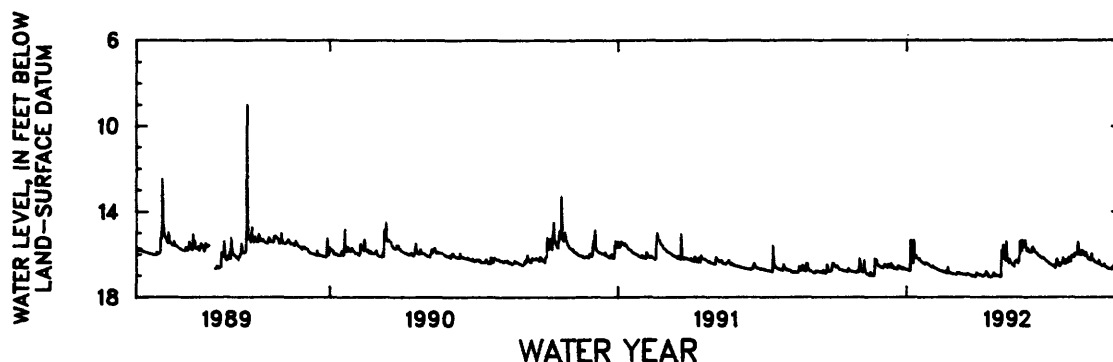
PERIOD OF RECORD.--March 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.75 ft (2.67 m) below land-surface datum, Sept. 18, 1989; lowest water level recorded, 17.08 ft (5.20 m) below land-surface datum, Apr. 16, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.52	16.82	16.58	16.72	16.57	16.93	16.93	16.21	15.83	16.46	15.94	16.43
2	16.52	16.18	16.63	16.72	16.60	16.94	16.96	15.54	15.69	16.49	15.98	16.48
3	16.59	16.69	16.57	16.75	16.53	16.93	16.95	16.13	15.78	16.51	15.94	16.51
4	16.59	16.74	16.47	16.77	16.61	16.94	16.97	16.21	15.88	16.53	15.99	16.55
5	16.52	16.81	16.49	16.78	16.62	16.87	16.99	16.29	15.88	16.52	15.39	16.53
6	16.65	16.83	16.56	15.30	16.65	16.88	17.03	15.37	15.90	16.58	15.89	16.50
7	16.69	16.82	16.61	16.26	16.66	16.87	16.98	16.23	15.89	16.64	16.00	16.46
8	16.71	16.25	16.47	16.41	16.69	16.91	16.97	16.32	15.66	16.51	15.99	16.58
9	16.70	16.74	16.56	16.39	16.72	16.92	16.94	16.40	15.64	16.20	16.03	16.59
10	16.73	16.85	16.56	15.30	16.73	16.92	16.80	16.21	15.75	16.47	15.79	16.64
11	16.74	16.91	16.59	16.11	16.74	16.92	16.85	16.37	15.87	16.38	15.85	16.64
12	16.76	16.92	16.42	16.17	16.77	16.95	16.91	16.41	15.90	16.54	16.00	16.68
13	16.77	16.93	16.61	16.06	16.78	16.95	17.03	16.48	15.92	16.55	16.05	16.68
14	16.77	16.97	16.53	16.17	16.79	16.94	17.02	16.49	15.95	16.48	16.06	16.68
15	16.77	16.98	16.65	16.20	16.79	16.95	17.05	16.54	16.02	16.39	15.88	16.70
16	16.78	16.82	16.66	16.24	16.82	16.97	17.07	16.58	16.04	16.40	16.06	16.70
17	16.81	16.96	16.65	16.18	16.81	16.94	17.03	16.31	16.08	16.15	16.17	16.58
18	16.82	16.98	16.65	16.28	16.84	16.90	17.00	16.35	16.12	16.37	16.22	16.59
19	16.65	16.99	16.69	16.34	16.80	16.95	16.99	16.28	16.14	16.44	16.24	16.69
20	16.75	16.99	16.70	16.35	16.87	16.96	16.85	16.37	16.17	16.44	16.24	16.31
21	16.78	16.98	16.52	16.40	16.88	16.96	16.93	16.42	16.13	16.24	16.27	16.44
22	16.80	16.16	16.57	16.42	16.59	17.00	17.01	16.31	16.17	16.29	15.96	16.66
23	16.79	16.45	16.57	16.45	16.86	16.96	16.99	15.97	16.21	16.39	16.22	16.66
24	16.81	16.22	16.65	16.46	16.87	17.03	16.98	15.36	16.24	16.12	16.24	16.50
25	16.81	16.47	16.67	16.39	16.87	16.99	16.99	15.88	16.28	16.27	16.31	16.59
26	16.82	16.53	16.67	16.41	16.88	16.99	17.02	15.78	16.32	16.34	16.36	16.65
27	16.81	16.53	16.62	16.45	16.90	17.01	17.04	15.32	16.34	16.31	16.37	16.67
28	16.83	16.56	16.67	16.46	16.91	17.05	17.04	15.53	16.38	16.02	16.41	16.71
29	16.85	16.59	16.67	16.47	16.92	16.85	17.05	15.61	16.41	16.08	16.43	16.70
30	16.84	16.60	16.68	16.53	---	16.94	15.80	15.34	16.44	16.13	16.45	16.70
31	16.76	---	16.71	16.56	---	16.94	---	15.69	---	16.13	16.27	---
MEAN	16.73	16.71	16.60	16.34	16.76	16.94	16.94	16.07	16.03	16.37	16.10	16.59

WTR YR 1992 MEAN 16.51 HIGHEST 12.89 APR. 30, 1992 LOWEST 17.08 APR. 16, 1992



## GROUND-WATER LEVELS

## RIO HONDO TO RIO PUERTO NUEVO BASINS

182406066034700. Local number, PN-19.

LOCATION.--Lat 18°24'06", long 66°03'47", Hydrologic Unit 21010005, 4.65 mi southeast of Cataño plaza, 0.89 mi south of Escuela J. J. Osuna, and 0.78 mi southwest of University of Puerto Rico main gate. Owner: U.S. Geological Survey, WRD, Name: Jardin Botánico No. 3.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m) cased 4.0 in (0.10 m), 0-48 ft (0-14.6 m), perforated 38-48 ft (11.6-14.6 m). Depth 48 ft. (14.6 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 32 ft (9.75 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 2.91 ft (0.88 m) above land-surface datum.

REMARKS.--Recording observation well.

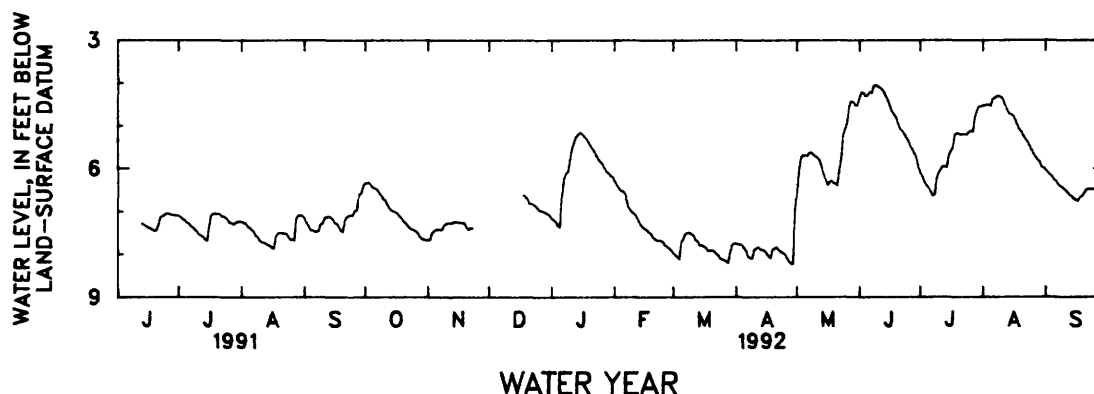
PERIOD OF RECORD.--June 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.04 ft (1.23 m) below land-surface datum, June 9, 1992; lowest water level recorded, 8.23 ft (2.51 m) below land-surface datum, Apr. 28, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.34	7.67	---	7.17	6.30	7.97	7.75	6.55	4.35	6.11	4.53	6.04
2	6.33	7.65	---	7.20	6.40	8.03	7.77	6.01	4.21	6.20	4.52	6.09
3	6.34	7.50	---	7.24	6.47	8.07	7.78	5.73	4.23	6.33	4.51	6.15
4	6.42	7.45	---	7.34	6.52	8.11	7.79	5.69	4.31	6.40	4.52	6.19
5	6.45	7.42	---	7.37	6.54	7.70	7.86	5.69	4.29	6.46	4.53	6.27
6	6.47	7.42	---	6.61	6.59	7.65	7.93	5.71	4.21	6.55	4.37	6.29
7	6.51	7.42	---	6.22	6.75	7.53	8.07	5.64	4.22	6.63	4.35	6.37
8	6.58	7.42	---	6.11	6.92	7.50	8.09	5.63	4.05	6.61	4.31	6.42
9	6.64	7.32	---	6.08	6.99	7.50	8.10	5.68	4.05	6.24	4.31	6.44
10	6.71	7.29	---	5.77	7.03	7.53	7.89	5.72	4.09	6.11	4.33	6.49
11	6.73	7.27	---	5.50	7.07	7.56	7.86	5.75	4.10	6.02	4.38	6.53
12	6.84	7.27	---	5.39	7.14	7.67	7.84	5.80	4.15	5.95	4.52	6.58
13	6.92	7.27	---	5.25	7.23	7.70	7.89	5.94	4.22	5.96	4.63	6.63
14	6.97	7.24	---	5.20	7.32	7.79	7.90	6.13	4.31	5.97	4.72	6.66
15	7.00	7.25	---	5.16	7.37	7.79	7.92	6.26	4.41	5.69	4.74	6.71
16	7.02	7.25	---	5.20	7.41	7.82	7.98	6.40	4.54	5.60	4.77	6.74
17	7.05	7.26	---	5.26	7.44	7.85	8.05	6.33	4.67	5.51	4.87	6.76
18	7.11	7.26	6.62	5.31	7.49	7.92	8.09	6.29	4.74	5.20	4.98	6.67
19	7.16	7.27	6.67	5.38	7.53	7.92	7.89	6.35	4.81	5.18	5.09	6.64
20	7.23	7.37	6.72	5.47	7.62	7.92	7.86	6.36	4.96	5.19	5.15	6.57
21	7.27	7.42	6.82	5.55	7.66	7.93	7.84	6.40	5.08	5.21	5.24	6.50
22	7.34	7.39	6.83	5.61	7.68	7.98	7.90	6.00	5.13	5.20	5.32	6.48
23	7.39	7.39	6.84	5.72	7.68	8.02	7.95	5.74	5.21	5.20	5.38	6.49
24	7.42	---	6.87	5.79	7.69	8.10	7.97	5.21	5.29	5.21	5.47	6.48
25	7.43	---	6.92	5.85	7.72	8.12	8.00	5.07	5.37	5.15	5.57	6.49
26	7.46	---	6.98	5.90	7.79	8.14	8.09	4.94	5.49	5.12	5.67	6.51
27	7.51	---	6.99	6.01	7.82	8.17	8.17	4.53	5.56	5.14	5.74	6.56
28	7.59	---	7.01	6.08	7.86	8.20	8.22	4.42	5.66	4.80	5.80	6.62
29	7.64	---	7.03	6.12	7.91	7.99	8.23	4.44	5.75	4.64	5.85	6.69
30	7.66	---	7.06	6.18	---	7.78	7.00	4.53	5.98	4.55	5.97	6.74
31	7.67	---	7.09	6.21	---	7.75	---	4.53	---	4.55	5.99	---
MEAN	7.01	7.37	6.89	5.98	7.24	7.86	7.92	5.66	4.71	5.63	4.97	6.49

WTR YR 1992 MEAN 6.43 HIGHEST 4.04 JUNE 9, 1992 LOWEST 8.23 APR. 28, 1992



## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN

181550065593200. Local number, 50.

LOCATION.--Lat 18°15'50", long 65°59'32", Hydrologic Unit 21010005, 1.36 mi northwest of Gurabo plaza, 0.70 mi north of Estación Experimental Agrícola, and 2.42 mi southwest of Escuela José M. Gallardo. Owner: Gurabo Agricultural Experimental Station, Name: Gurabo.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 13 in (0.34 m), cased 4 in (0.10 m), 0-145 ft (0-44.2 m). Depth 145 ft (44.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 148 ft (45.1 m) above mean sea level, from topographic map. Measuring point: Top of 12 in (0.30 m) casing, 0.80 ft (0.24 m) above land-surface datum.

REMARKS.--Observation well. Automatic digital recorder installed on September 18, 1991.

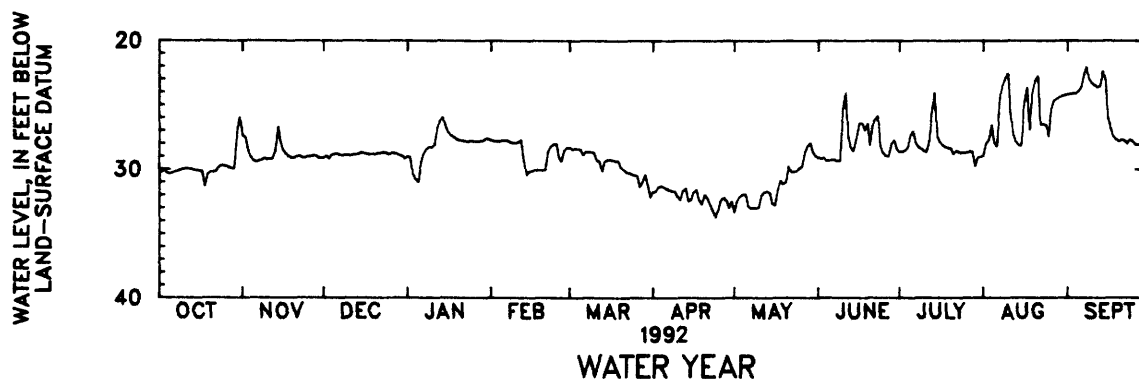
PERIOD OF RECORD.--December 1960 to March 1985, September 1991 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.6 ft (3.86 m) below land-surface datum, Sept. 9, 1975; lowest water level measured, 44.4 ft (13.5 m) below land-surface datum, June 18, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.25	27.44	29.10	29.03	27.75	28.31	31.70	33.33	29.10	28.66	28.93	24.18
2	30.22	27.53	28.99	29.10	27.81	28.44	31.72	32.39	29.17	28.63	27.94	24.14
3	30.12	28.56	29.16	30.46	27.83	28.38	31.33	32.10	29.12	28.53	27.71	24.11
4	30.34	29.11	28.90	30.83	27.84	28.41	31.29	31.96	29.31	28.35	26.55	24.11
5	30.35	29.34	28.83	31.00	27.78	28.44	31.39	31.92	29.31	27.33	27.97	23.95
6	30.29	29.44	28.81	29.52	27.75	28.91	31.50	32.89	29.23	27.01	28.25	23.65
7	30.21	29.34	28.89	28.76	27.78	28.61	31.61	33.00	29.27	28.03	24.42	22.71
8	30.14	29.29	28.92	28.41	27.90	28.63	31.67	33.01	29.37	28.30	23.46	22.05
9	30.06	29.14	28.91	28.28	27.96	28.64	31.72	33.02	29.31	28.42	22.87	23.06
10	29.99	29.23	28.92	28.31	27.96	28.69	32.14	32.92	25.45	28.58	22.54	23.32
11	29.96	29.20	28.92	28.08	27.87	29.32	32.36	31.97	24.02	28.65	25.74	23.47
12	29.97	29.18	28.87	26.66	27.73	29.37	31.61	31.76	27.51	27.80	27.37	23.62
13	30.00	28.61	28.86	26.21	29.23	30.16	31.46	31.71	28.37	25.50	27.90	23.52
14	30.06	26.70	28.80	25.96	30.45	29.35	32.47	31.82	28.60	24.01	28.16	22.35
15	30.09	27.92	28.72	26.76	30.16	29.23	32.34	32.69	27.52	27.55	28.17	23.15
16	30.13	28.58	28.77	27.17	30.12	29.25	31.74	32.81	26.39	27.90	24.92	26.03
17	30.23	28.82	28.83	27.39	30.07	29.29	31.59	31.58	26.42	28.15	23.62	26.93
18	31.34	29.02	28.86	27.52	30.07	29.35	32.43	30.85	26.96	28.28	26.97	27.48
19	30.36	29.11	28.82	27.68	30.06	29.35	32.69	31.13	26.49	28.36	23.99	27.69
20	30.23	29.10	28.86	27.75	30.07	29.89	31.92	30.97	28.18	28.39	23.09	27.82
21	30.21	29.03	28.78	27.80	30.05	30.08	32.24	29.71	26.57	28.83	22.74	27.71
22	30.17	28.99	28.76	27.83	28.58	30.22	32.72	30.24	26.11	28.56	26.58	27.76
23	29.89	29.09	28.69	27.86	28.19	30.31	33.17	30.19	25.89	28.66	26.50	27.98
24	29.71	29.10	28.72	27.83	28.06	30.40	33.69	30.11	28.28	28.72	26.59	27.70
25	29.72	29.01	28.82	27.81	28.00	30.47	33.16	29.91	28.78	28.74	27.46	27.79
26	29.77	29.02	28.76	27.85	29.12	30.52	32.34	29.80	28.97	28.67	25.29	28.06
27	29.88	28.95	28.76	27.85	29.40	31.40	32.18	28.64	29.00	28.61	24.62	28.10
28	29.96	28.96	28.83	27.81	28.52	31.00	32.41	28.16	27.97	28.64	24.51	28.13
29	29.94	29.11	28.92	27.76	28.31	30.40	32.98	27.95	27.72	29.80	24.41	28.29
30	26.86	29.15	28.99	27.62	---	31.26	32.48	28.68	28.49	29.04	24.29	28.33
31	25.97	---	29.16	27.68	---	32.19	---	28.97	---	29.01	24.22	---
MEAN	29.88	28.84	28.87	28.08	28.70	29.62	32.13	31.17	27.90	28.18	25.73	25.57

WTR YR 1992 MEAN 28.73 HIGHEST 22.05 SEPT. 8, 1992 LOWEST 33.99 APR. 24, 1992





GROUND-WATER LEVELS  
RIO GRANDE DE LOIZA BASIN

182515065594100. Local number, 222.

LOCATION.--Lat 18°25'15", long 65°59'41", Hydrologic Unit 21010005, 3.56 mi northwest of Carolina plaza, 1.21 mi northwest of Escuela Extensión El Comandante, and 0.74 mi southwest of Escuela Vistamar. Owner: U.S. Geological Survey, WRD, Name: Campo Rico TW-1.

AQUIFER.--Surficial Deposits.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m). Depth 100 ft (30.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 10.0 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 0.80 ft (0.24 m) above land-surface datum. Prior July 28, 1986, top of shelter floor, 3.10 ft (0.94 m) above land-surface datum.

REMARKS.--Recording observation well.

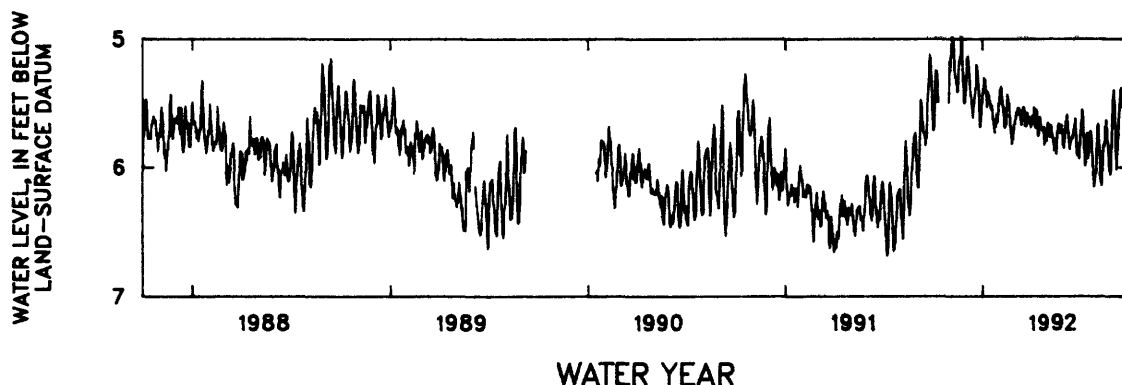
PERIOD OF RECORD.--February 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.42 ft (1.35 m) below land-surface datum, Aug. 31, 1986; lowest water level recorded, 7.42 ft (2.26 m) below land-surface datum, Feb. 9, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.71	5.17	5.34	5.43	5.50	5.63	5.62	5.66	5.73	5.66	5.66	5.65
2	5.71	5.25	5.29	5.38	5.39	5.62	5.60	5.72	5.64	5.55	5.74	5.73
3	5.66	5.14	5.15	5.40	5.40	5.57	5.65	5.73	5.64	5.56	5.86	5.88
4	5.54	5.05	5.15	5.30	5.37	5.59	5.61	5.76	5.62	5.61	5.88	6.02
5	5.34	5.01	5.14	5.36	5.39	5.56	5.53	5.71	5.59	5.71	6.07	5.90
6	5.24	4.98	5.19	5.32	5.49	5.54	5.62	5.67	5.65	5.84	6.11	5.82
7	5.26	5.01	5.25	5.42	5.51	5.56	5.68	5.71	5.71	5.92	6.10	5.76
8	5.25	5.00	5.32	5.40	5.53	5.54	5.69	5.75	5.76	5.99	6.14	5.62
9	5.30	5.10	5.40	5.53	5.58	5.58	5.55	5.77	5.81	5.95	6.06	5.55
10	5.49	5.27	5.44	5.46	5.68	5.58	5.55	5.77	5.86	5.90	5.86	5.51
11	---	5.30	5.48	5.41	5.69	5.61	5.61	5.83	5.78	5.78	5.82	5.41
12	---	5.30	5.57	5.43	5.67	5.67	5.74	5.87	5.80	5.73	5.84	5.39
13	---	5.35	5.56	5.45	5.66	5.65	5.76	5.85	5.77	5.93	5.77	5.38
14	---	5.35	5.62	5.48	5.59	5.61	5.72	5.78	5.77	5.86	5.68	5.42
15	---	5.41	5.51	5.50	5.52	5.58	5.62	5.81	5.77	5.81	5.70	5.48
16	---	5.40	5.51	5.54	5.43	5.53	5.61	5.90	5.74	5.80	5.63	5.53
17	---	5.30	5.46	5.54	5.48	5.53	5.67	5.73	5.70	5.73	5.73	5.59
18	---	5.18	5.42	5.52	5.50	5.57	5.69	5.72	5.69	5.72	5.81	5.61
19	---	5.17	5.38	5.55	5.52	5.68	5.69	5.67	5.71	5.76	5.82	5.75
20	---	5.14	5.37	5.63	5.61	5.67	5.71	5.66	5.62	5.85	5.87	5.77
21	---	5.15	5.20	5.63	5.68	5.62	5.69	5.72	5.73	5.90	5.97	5.78
22	---	4.96	5.21	5.69	5.72	5.68	5.69	5.73	5.81	6.00	6.03	5.71
23	---	4.96	5.28	5.73	5.76	5.57	5.75	5.71	5.91	6.05	6.02	5.60
24	---	5.04	5.35	---	5.82	5.61	5.83	5.69	5.87	6.06	6.06	5.43
25	---	5.26	5.39	5.68	5.75	5.64	5.73	5.67	5.83	6.16	5.86	5.25
26	---	5.33	5.58	5.62	5.78	5.63	5.70	5.72	5.90	6.12	5.76	5.23
27	---	5.48	5.69	5.59	5.71	5.61	5.75	5.72	5.93	6.07	5.62	5.21
28	---	5.50	5.68	5.65	5.67	5.65	5.80	5.83	5.84	6.04	5.49	5.29
29	---	5.49	5.61	5.59	5.66	5.62	5.74	5.79	5.76	5.88	5.42	5.42
30	5.49	5.44	5.52	5.55	---	5.69	5.65	5.85	5.69	5.77	5.39	5.50
31	5.32	---	5.51	5.50	---	5.66	---	5.78	---	5.68	5.49	---
MEAN	5.44	5.22	5.41	5.51	5.59	5.61	5.67	5.75	5.75	5.85	5.81	5.57

WTR YR 1992 MEAN 5.61 HIGHEST 4.74 OCT. 31, 1991 LOWEST 6.23 JULY 28, 1992



GROUND-WATER LEVELS  
RIO GRANDE DE LOIZA BASIN

181513065554601. Local number, CJ-TW3B.

LOCATION.--Lat 18°15'13", long 65°55'46", Hydrologic Unit 21010005, 2.86 mi east of Gurabo plaza, 3.57 mi southwest of Hwy 186 km 4.7, and 1.39 mi southwest of Hwy 185 km 15.7. Owner: U.S. Geological Survey, WRD, Name: CJ-TW3B.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-38 ft (0-11.6 m) screened 25-35 ft (7.62 m). Depth 38 ft (11.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 187 ft (57.0 m) above mean sea level, from topographic map.

Measuring point: Top of casing 2.95 ft (0.90 m) above land-surface datum.

REMARKS.--Observation well. Automatic digital recorder installed on September 17, 1991.

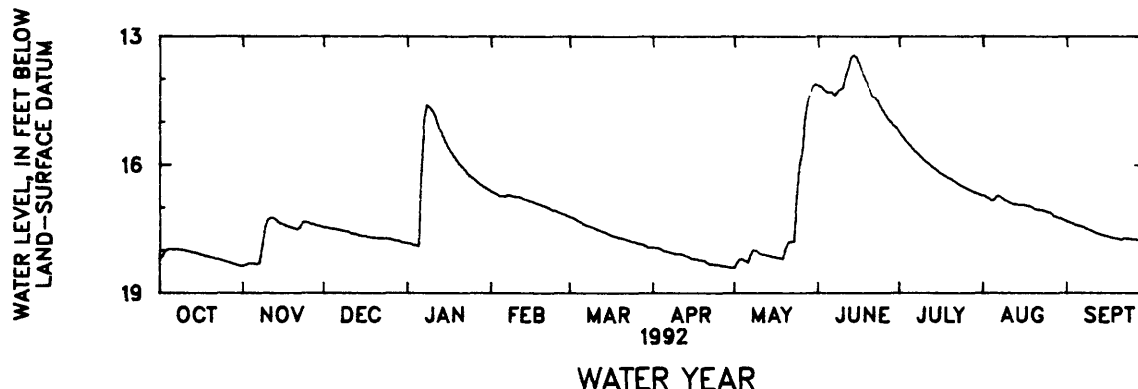
PERIOD OF RECORD.--September 1991 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.4 ft (4.09 m) below land-surface datum, June 13-14, 1992; lowest water level recorded, 18.4 ft (5.61 m) below land-surface datum, May 1-2, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.18	18.37	17.46	17.83	16.62	17.22	17.93	18.41	14.16	15.26	16.71	17.32
2	18.14	18.34	17.46	17.84	16.65	17.24	17.94	18.29	14.18	15.33	16.74	17.35
3	18.01	18.31	17.48	17.87	16.68	17.27	17.95	18.21	14.25	15.42	16.77	17.37
4	17.98	18.31	17.49	17.88	16.72	17.31	17.98	18.21	14.31	15.49	16.82	17.40
5	17.97	18.31	17.50	17.90	16.72	17.34	18.02	18.25	14.31	15.56	16.81	17.42
6	17.97	18.33	17.51	16.13	16.73	17.39	18.03	18.29	14.32	15.64	16.72	17.43
7	17.97	18.30	17.52	14.96	16.70	17.41	18.05	18.09	14.39	15.70	16.72	17.45
8	17.97	17.91	17.54	14.60	16.71	17.43	18.07	17.99	14.31	15.75	16.77	17.49
9	17.99	17.45	17.55	14.65	16.73	17.45	18.08	18.00	14.24	15.82	16.82	17.51
10	17.99	17.26	17.56	14.73	16.74	17.48	18.09	18.06	14.21	15.88	16.85	17.54
11	18.01	17.23	17.60	14.84	16.74	17.51	18.09	18.09	13.91	15.93	16.88	17.57
12	18.02	17.23	17.61	15.04	16.76	17.53	18.10	18.10	13.73	15.98	16.91	17.60
13	18.04	17.27	17.62	15.21	16.79	17.56	18.13	18.12	13.48	16.04	16.91	17.62
14	18.05	17.33	17.65	15.35	16.81	17.58	18.15	18.13	13.44	16.08	16.93	17.64
15	18.07	17.37	17.66	15.49	16.84	17.61	18.19	18.15	13.49	16.13	16.93	17.66
16	18.09	17.39	17.66	15.61	16.85	17.64	18.21	18.16	13.64	16.19	16.93	17.67
17	18.11	17.42	17.68	15.71	16.88	17.66	18.21	18.18	13.80	16.22	16.95	17.69
18	18.13	17.44	17.69	15.81	16.90	17.68	18.23	18.19	13.96	16.26	16.96	17.71
19	18.14	17.46	17.70	15.89	16.92	17.70	18.24	18.20	14.09	16.30	16.98	17.72
20	18.16	17.48	17.70	15.98	16.95	17.71	18.25	17.94	14.28	16.33	17.02	17.73
21	18.17	17.50	17.71	16.05	16.97	17.73	18.30	17.80	14.41	16.37	17.05	17.75
22	18.20	17.45	17.71	16.11	17.00	17.75	18.33	17.79	14.44	16.41	17.05	17.72
23	18.21	17.33	17.71	16.20	17.03	17.77	18.33	17.78	14.51	16.45	17.06	17.72
24	18.23	17.33	17.72	16.26	17.06	17.79	18.34	16.75	14.64	16.49	17.08	17.73
25	18.25	17.34	17.73	16.31	17.08	17.80	18.34	15.99	14.74	16.52	17.10	17.74
26	18.27	17.38	17.74	16.36	17.11	17.82	18.36	15.66	14.84	16.55	17.12	17.74
27	18.29	17.38	17.76	16.41	17.14	17.85	18.38	14.93	14.94	16.58	17.19	17.75
28	18.31	17.41	17.77	16.46	17.16	17.86	18.39	14.53	15.01	16.61	17.21	17.76
29	18.33	17.42	17.78	16.51	17.19	17.89	18.40	14.30	15.09	16.65	17.24	17.77
30	18.35	17.44	17.81	16.54	---	17.93	18.41	14.15	15.14	16.67	17.26	17.78
31	18.37	---	17.82	16.58	---	---	---	14.12	---	16.70	17.29	---
MEAN	18.13	17.62	17.64	16.10	16.87	17.60	18.18	17.32	14.28	16.11	16.96	17.61

WTR YR 1992 MEAN 17.03 HIGHEST 13.43 JUNE 13-14, 1992 LOWEST 18.42 MAY 1-2, 1992



## GROUND-WATER LEVELS

## RIO GRANDE DE LOIZA BASIN

181352066025300. Local number, CJ-TW19A.

LOCATION.--Lat 18°13'52", long 66°02'53". Hydrologic Unit 21010005, 0.96 mi southwest of Caguas plaza, 1.02 mi northwest of Escuela Antonio S. Pedreira, and 0.30 mi southeast of Hwy 156 km 59.1. Owner: U.S. Geological Survey, WRD, Name: CJ-TW19A.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-67 ft (0-20.4 m), screened 50-65 ft (15.2-19.8 m). Depth 67 ft (20.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 262 ft (79.8 m) above mean sea level, from topographic map.

Measuring point: Top of casing 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Observation well drilled on September 1, 1989. Automatic digital recorder installed on September 18, 1991. Aquifer test conducted on Aug. 13, 1990.

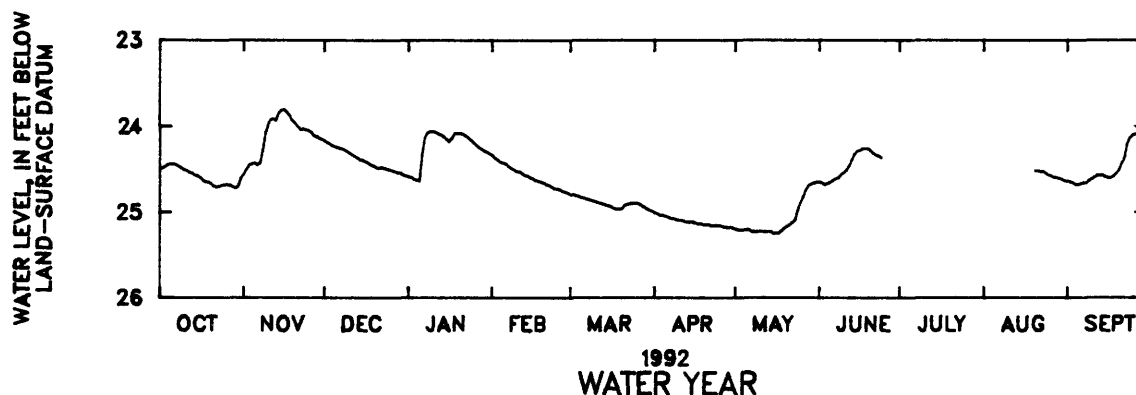
PERIOD OF RECORD.-- to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 114 ft (34.8 m) below land-surface datum, Apr. 24,, 1992; lowest water level recorded, 125 ft (37.1 m) below land-surface datum, Sept. 14, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.50	24.56	24.17	24.59	24.34	24.80	25.01	25.20	24.65	---	---	24.64
2	24.49	24.50	24.19	24.60	24.37	24.80	25.02	25.21	24.66	---	---	24.65
3	24.47	24.45	24.21	24.62	24.39	24.81	25.04	25.21	24.68	---	---	24.66
4	24.45	24.44	24.23	24.63	24.42	24.82	25.04	25.21	24.67	---	---	24.68
5	24.44	24.43	24.24	24.64	24.43	24.83	25.05	25.21	24.65	---	---	24.68
6	24.44	24.45	24.25	24.33	24.44	24.84	25.06	25.21	24.63	---	---	24.67
7	24.45	24.43	24.26	24.13	24.47	24.85	25.08	25.23	24.61	---	---	24.66
8	24.47	24.28	24.27	24.07	24.49	24.86	25.08	25.23	24.60	---	---	24.66
9	24.49	24.07	24.29	24.06	24.51	24.87	25.09	25.23	24.56	---	---	24.63
10	24.51	23.99	24.31	24.06	24.53	24.88	25.10	25.23	24.54	---	---	24.61
11	24.52	23.92	24.33	24.07	24.53	24.89	25.10	25.23	24.51	---	---	24.59
12	24.54	23.91	24.35	24.09	24.55	24.90	25.11	25.23	24.46	---	---	24.57
13	24.55	23.93	24.37	24.10	24.57	24.91	25.12	25.23	24.39	---	---	24.57
14	24.57	23.84	24.39	24.12	24.58	24.92	25.12	25.23	24.32	---	---	24.57
15	24.58	23.81	24.40	24.15	24.60	24.93	25.12	25.25	24.29	---	---	24.59
16	24.60	23.80	24.41	24.18	24.61	24.94	25.13	25.25	24.28	---	---	24.60
17	24.63	23.83	24.43	24.14	24.63	24.96	25.14	25.25	24.26	---	---	24.60
18	24.65	23.87	24.45	24.08	24.64	24.97	25.14	25.22	24.26	---	---	24.58
19	24.65	23.93	24.46	24.08	24.65	24.97	25.15	25.19	24.26	---	---	24.55
20	24.67	23.96	24.48	24.08	24.66	24.96	25.15	25.17	24.29	---	24.52	24.51
21	24.70	24.00	24.49	24.09	24.68	24.92	25.15	25.15	24.32	---	24.52	24.43
22	24.71	24.04	24.48	24.11	24.69	24.91	25.16	25.12	24.34	---	24.53	24.37
23	24.70	24.03	24.49	24.13	24.71	24.90	25.16	25.10	24.35	---	24.53	24.20
24	24.69	24.04	24.50	24.16	24.73	24.90	25.16	24.98	24.37	---	24.55	24.13
25	24.68	24.05	24.51	24.19	24.73	24.90	25.16	24.89	---	---	24.57	24.10
26	24.68	24.07	24.52	24.22	24.74	24.90	25.17	24.82	---	---	24.58	24.09
27	24.69	24.11	24.53	24.25	24.76	24.92	25.18	24.74	---	---	24.60	24.09
28	24.71	24.12	24.54	24.27	24.77	24.94	25.18	24.69	---	---	24.60	24.10
29	24.72	24.14	24.54	24.29	24.78	24.96	25.18	24.67	---	---	24.61	24.12
30	24.70	24.15	24.57	24.30	---	24.98	25.19	24.66	---	---	24.62	24.14
31	24.60	---	24.58	24.32	---	24.99	---	24.65	---	---	24.64	---
MEAN	24.59	24.10	24.39	24.23	24.59	24.90	25.12	25.09	24.46	---	24.57	24.47

WTR YR 1992 MEAN 24.60 HIGHEST 23.78 NOV. 16, 1991 LOWEST 25.25 MAY 15-17, 1992



## GROUND-WATER LEVELS

## RIO HUMACAO TO RIO SECO BASINS

175858066100200. Local number, 6.

LOCATION.--Lat 17°58'58", long 66°10'02", Hydrologic Unit 21010004, 4.23 mi northeast of Central Aguirre Church, 4.08 mi northeast of Colegio del Perpetuo Socorro Church, and 1.77 mi northwest of Hwy 3 km 144.2. Owner: Doctor Bruno, Name: Juana S.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m). Depth 173 ft (52.74 m) reported, 110 ft (33.54 m) measured.

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 127 ft (38.7 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum. After Aug. 7, 1981, top of 16 in (0.41 m) casing, 1.55 ft (0.47 m) above land-surface datum.

REMARKS.--Recording observation well.

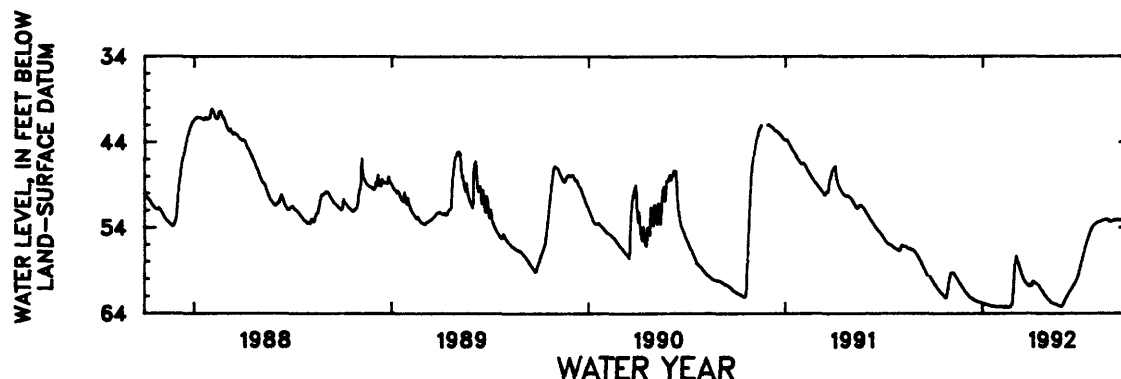
PERIOD OF RECORD.--November 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.20 ft (7.99 m) below land-surface datum, Dec. 10, 1979; lowest water level recorded, 65.95 ft (20.10 m) below land-surface datum, June 2, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60.23	59.98	61.48	62.81	63.24	58.26	60.77	62.25	62.60	58.41	53.37	53.13
2	60.33	59.69	61.56	62.83	63.24	57.62	60.67	62.32	62.46	58.10	53.35	53.12
3	60.43	59.45	61.64	62.84	63.24	57.36	60.37	62.40	62.32	57.80	53.33	53.10
4	60.53	59.31	61.73	62.85	---	57.71	60.29	62.47	62.19	57.51	53.30	53.10
5	60.63	59.28	61.81	62.87	---	57.95	60.32	62.54	62.07	57.23	53.30	53.08
6	60.72	59.29	61.88	62.90	63.24	58.10	60.37	62.61	61.95	56.99	53.28	53.07
7	60.81	59.27	61.94	62.92	63.24	58.18	60.44	62.67	61.84	56.74	53.25	53.06
8	60.90	59.27	62.01	62.95	63.24	58.29	60.48	62.72	61.77	56.50	53.21	53.07
9	61.00	59.32	62.07	62.97	63.24	58.46	60.48	62.76	61.64	56.27	53.17	53.09
10	61.07	59.40	62.13	62.99	63.24	58.70	60.50	62.78	61.53	56.05	53.13	53.11
11	61.16	59.51	62.17	63.00	63.25	58.91	60.52	62.80	61.43	55.83	53.12	53.14
12	61.24	59.62	62.22	63.02	63.25	59.10	60.58	62.82	61.33	55.63	53.10	53.14
13	61.33	59.72	62.26	63.04	63.25	59.31	60.64	62.85	61.23	55.41	53.09	53.12
14	61.40	59.83	62.30	63.06	63.25	59.49	60.71	62.89	61.13	55.22	53.07	---
15	61.49	59.94	62.35	63.08	63.25	59.65	60.80	62.91	61.03	55.03	53.05	---
16	61.56	60.04	62.38	63.10	63.26	59.81	60.89	62.93	60.92	54.87	53.06	---
17	61.64	60.14	62.42	63.11	63.26	59.96	60.99	62.95	60.82	54.67	53.06	53.04
18	61.71	60.24	62.46	63.13	63.26	60.10	61.09	62.98	60.72	54.49	53.07	52.93
19	61.78	60.35	62.50	63.14	63.26	60.23	61.18	63.00	60.61	54.32	53.08	52.85
20	61.85	60.44	62.53	63.15	63.25	60.33	61.27	63.04	60.50	54.19	53.11	52.77
21	61.92	60.54	62.56	63.17	63.23	60.40	61.37	63.07	60.39	54.06	53.13	52.74
22	61.99	60.64	62.59	63.18	63.15	60.46	61.47	63.09	60.27	53.95	53.27	52.72
23	62.06	60.74	62.61	63.19	63.03	60.53	61.58	63.11	60.14	53.86	53.30	52.74
24	62.12	60.83	62.64	63.21	62.96	60.61	61.67	63.13	60.01	53.77	53.31	52.77
25	62.17	60.92	62.66	63.22	62.88	60.69	61.76	63.16	59.85	53.69	53.29	52.81
26	62.14	61.02	62.68	63.22	62.88	60.78	61.85	63.16	59.67	53.62	53.28	52.83
27	61.95	61.12	62.70	63.23	61.36	60.81	61.94	63.16	59.46	53.57	53.24	52.86
28	61.62	61.21	62.72	63.23	60.21	60.73	62.02	63.11	59.22	53.52	53.22	52.90
29	61.18	61.30	62.74	63.24	59.16	60.67	62.09	63.01	58.96	53.47	53.19	52.94
30	60.72	61.39	62.77	63.24	---	60.67	62.17	62.89	58.71	53.43	53.17	52.99
31	60.32	---	62.79	63.24	---	60.72	---	62.75	---	53.40	53.15	---
MEAN	61.29	60.13	62.30	63.07	62.84	59.50	61.04	62.85	60.89	55.21	53.20	52.97

WTR YR 1992 MEAN 59.64 HIGHEST 52.71 SEPT. 22, 1992 LOWEST 63.26 FEB. 15-20, 1992



## GROUND-WATER LEVELS

## RIO HUMACAO TO RIO SECO BASINS

180415065513900. Local number, 96.

LOCATION.--Lat 18°04'15", long 65°51'39", Hydrologic Unit 21010005, 2.44 mi northwest of Escuela Eugenio María de Hostos 4.67 mi southwest of Escuela Segunda Unidad Luciano, and 3.93 mi southwest of Escuela Asunción López.

Owner: P.R. Aqueduct and Sewer Authority, Name: USGS TW-2 or Yabucoa 7.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 16 in (0.41 m), cased 0-10 ft (0-3.05 m), diameter 6 in (0.15 m), cased about 0-183 ft (0-55.79 m), perforated 56-81 ft (17.07-24.70 m), 102-123 ft (31.10-37.50 m), 144-181 ft (43.90-55.18 m). Depth 181 ft (55.18 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 25 ft (7.62 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 4.00 ft (1.22 m) above land-surface.

REMARKS.--Recording observation well.

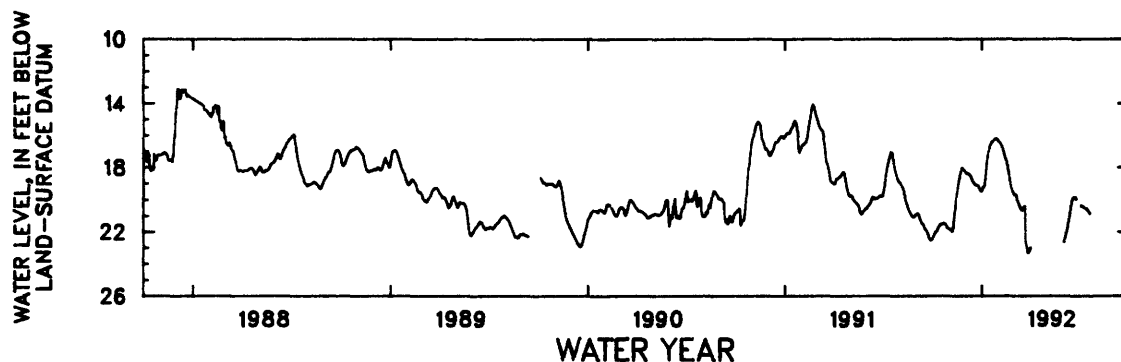
PERIOD OF RECORD.--April 25, 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.10 ft (3.99 m) below land-surface datum, Dec. 2, 1987; lowest water level recorded, 28.29 ft (8.62 m) below land-surface datum, Sept. 20, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.43	21.82	18.25	19.42	16.36	19.70	---	---	22.62	---	---	---
2	22.38	21.84	18.30	19.34	16.40	19.70	---	---	22.48	---	---	---
3	22.28	21.86	18.35	19.25	16.44	19.69	---	---	22.35	20.38	---	---
4	22.20	21.90	18.38	19.21	16.49	19.72	---	---	22.19	20.39	---	---
5	22.13	21.92	18.36	19.19	16.54	19.81	---	---	22.06	20.40	---	---
6	22.08	21.94	18.36	19.07	16.60	19.94	---	---	21.90	20.40	---	---
7	22.01	21.94	18.38	18.75	16.67	20.04	---	---	21.77	20.43	---	---
8	21.98	21.93	18.41	18.41	16.76	20.12	---	---	21.60	20.47	---	---
9	21.95	21.73	18.46	18.11	16.88	20.23	---	---	21.41	20.49	---	---
10	21.90	21.42	18.50	17.79	17.01	20.32	---	---	21.21	20.52	---	---
11	21.82	21.10	18.54	17.53	17.13	20.40	---	---	21.01	20.54	---	---
12	21.76	20.79	18.63	17.31	17.25	20.48	---	---	20.79	20.54	---	---
13	21.69	20.51	18.71	17.12	17.36	20.55	---	---	20.56	20.55	---	---
14	21.63	20.18	18.77	16.95	17.46	20.61	---	---	20.36	20.58	---	---
15	21.58	19.86	18.86	16.81	17.55	20.64	---	---	20.20	20.65	---	---
16	21.53	19.55	18.93	16.70	17.70	20.62	---	---	20.07	20.71	---	---
17	21.51	19.28	18.98	16.60	17.85	20.57	---	---	19.96	20.75	---	---
18	21.51	19.06	19.02	16.53	18.04	20.52	---	---	19.87	20.82	---	---
19	21.51	18.86	19.05	16.45	18.22	20.47	---	---	19.85	20.87	---	---
20	21.48	18.69	19.09	16.41	18.43	20.43	---	---	19.85	---	---	---
21	21.46	18.55	19.11	16.39	18.65	20.41	---	---	19.85	---	---	21.90
22	21.46	18.41	19.12	16.37	18.86	22.68	---	---	19.84	---	---	21.81
23	21.46	18.28	19.11	16.33	19.05	22.81	---	---	19.91	---	---	21.69
24	21.47	18.16	19.12	16.28	19.21	23.02	---	---	19.97	---	---	21.56
25	21.50	18.04	19.15	16.24	19.34	23.23	---	---	---	---	---	21.35
26	21.55	18.02	19.23	16.21	19.43	23.31	---	---	---	---	---	21.22
27	21.62	18.09	19.30	16.20	19.50	23.28	---	---	---	---	---	21.09
28	21.73	18.11	19.37	16.20	19.58	23.25	---	---	---	---	---	20.98
29	21.76	18.15	19.44	16.22	19.67	23.15	---	---	---	---	---	20.85
30	21.78	18.20	19.50	16.26	---	23.07	---	---	---	---	---	20.75
31	21.80	---	19.49	16.31	---	23.00	---	---	---	---	---	---
MEAN	21.77	19.94	18.85	17.29	17.81	21.15	---	---	20.90	20.56	---	21.32

WTR YR 1992 MEAN 19.79 HIGHEST 16.20 JAN. 26-28, 1992 LOWEST 23.31 MAR. 26, 1992



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

175829066232200. Local number, 87.

LOCATION.--Lat 17°58'29", long 66°23'22", Hydrologic Unit 21010004, 1.10 mi northeast of Santa Isabel plaza, 3.69 mi southeast of Escuela Playita Cortada, and 1.07 mi southeast of Estación Experimental Santa Isabel.

Owner: Francisco Alomar, Name: Alomar 1.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), iron cased. Depth 112 ft (34.14 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 35.32 ft (10.77 m) above mean sea level.

Measuring point: Bottom of clean-out shelter door, 2.50 ft (0.76 m) above land-surface datum. Prior to August 1981, top of recorder shelter floor, 4.00 ft (1.22 m) above land-surface datum.

REMARKS.--Recording observation well.

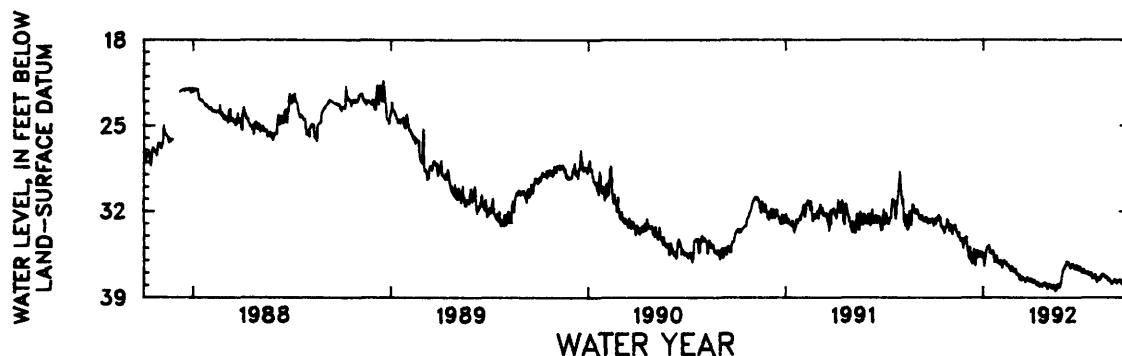
PERIOD OF RECORD.--April 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.45 ft (2.58 m) below land-surface datum, Dec. 10, 1970; lowest water level recorded, 49.18 ft (14.99 m) below land-surface datum, July 27, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32.87	33.34	34.07	35.41	36.12	36.71	37.73	37.99	36.31	36.94	37.54	37.58
2	33.14	33.06	34.61	35.60	35.98	36.83	37.71	38.04	36.43	36.89	37.47	37.65
3	32.86	33.36	34.90	36.49	36.02	37.13	37.78	37.89	36.06	37.01	37.35	37.65
4	32.80	33.63	35.20	35.86	36.23	37.05	37.66	37.93	36.18	36.89	37.56	37.85
5	32.99	33.86	35.66	35.75	36.59	37.08	37.54	38.02	36.13	36.70	37.48	37.86
6	32.52	33.54	35.83	35.32	36.34	37.13	37.67	38.20	36.30	36.87	37.29	37.74
7	32.56	33.27	35.27	35.10	36.21	37.29	37.85	38.18	36.14	36.98	37.17	37.61
8	32.70	33.16	34.92	34.95	36.07	37.52	37.76	38.14	36.35	37.06	37.11	37.68
9	32.73	33.12	35.70	34.86	35.96	37.14	38.00	38.24	36.43	36.92	37.07	37.72
10	32.42	33.09	36.07	34.82	35.99	37.36	37.97	38.05	36.59	37.06	37.15	37.68
11	32.30	33.44	36.17	34.87	36.20	37.33	37.87	37.97	36.59	36.98	37.25	37.56
12	32.30	33.44	36.26	34.75	36.23	37.61	37.73	38.23	36.41	36.94	37.18	37.76
13	32.81	33.69	36.00	34.79	36.12	37.40	37.87	38.28	36.41	36.91	37.21	37.84
14	32.46	33.71	35.46	35.38	36.43	37.32	38.13	38.44	36.29	37.16	37.39	37.79
15	33.17	33.95	35.07	35.26	36.30	37.45	38.01	38.39	36.26	37.15	37.28	37.97
16	33.28	34.04	35.73	35.42	36.34	37.40	38.00	38.28	36.48	37.17	37.38	37.84
17	33.19	33.69	36.05	35.39	36.36	37.54	37.98	37.97	36.55	37.17	37.30	37.66
18	33.28	34.00	36.38	35.34	36.49	37.59	37.88	37.92	36.68	37.12	37.39	37.56
19	33.47	34.21	35.84	35.23	36.67	37.74	38.11	37.93	36.63	36.98	37.66	37.80
20	33.48	34.35	35.98	35.41	36.65	37.70	37.89	38.01	36.70	37.16	37.46	37.80
21	33.80	34.41	35.19	35.86	36.86	37.55	37.89	38.19	36.51	37.44	37.50	37.59
22	33.67	34.38	35.22	36.14	36.69	37.42	37.82	38.09	36.36	37.29	37.51	37.49
23	33.36	34.47	---	35.74	36.50	37.34	37.89	37.97	36.43	37.22	37.66	37.44
24	33.20	34.24	35.72	35.74	36.47	37.56	37.76	37.76	36.53	37.37	37.74	37.40
25	33.32	35.04	35.52	35.62	36.64	37.46	38.04	37.53	36.77	37.26	37.86	37.51
26	32.76	34.60	35.27	35.67	36.90	37.51	38.00	37.18	36.65	37.15	37.92	37.38
27	32.64	34.24	35.48	35.96	36.92	37.71	37.86	36.91	36.52	37.17	37.76	37.27
28	32.91	34.20	35.68	36.18	36.93	37.63	38.09	36.75	36.48	37.50	37.76	37.24
29	32.75	34.10	35.33	36.03	36.86	37.46	38.30	36.57	36.58	37.73	37.71	37.16
30	33.09	34.24	35.31	36.06	---	37.47	38.07	36.66	36.72	37.62	37.61	37.21
31	33.62	---	35.80	36.30	---	37.74	---	36.37	---	37.45	37.52	---
MEAN	32.98	33.86	35.50	35.53	36.42	37.39	37.90	37.81	36.45	37.14	37.46	37.61

WTR YR 1992 MEAN 36.34 HIGHEST 32.27 OCT. 12, 1991 LOWEST 38.52 MAY 14, 1992



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

180002066132200. Local number, HW-TW-01.

LOCATION.--Lat 18°00'02", long 66°13'22", Hydrologic Unit 21010004, 3.30 mi southwest of Cerro Guaraco, 8.71 mi southwest of Cayey plaza, and 2.80 mi southeast of Hwy 1 km 82.3 on Rabo del Buey. Owner: U.S. Geological Survey, WRD, Name: HW-TW-01.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-39.5 ft (0-12.0 m), cased 4 in (0.10 m), 0-38.2 ft (0-11.6 m), screened 32-37 ft (9.75-11.3 m). Depth 39.5 ft (12.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 190 ft (58.0 m) above mean sea level.

Measuring point: Hole on side of 4 in (0.10 m) casing, 2.84 ft (0.87 m) above land-surface datum. Prior October 13, 1988, top of shelter floor, 3.48 ft (1.06 m) above land-surface datum.

REMARKS.--Recording observation well.

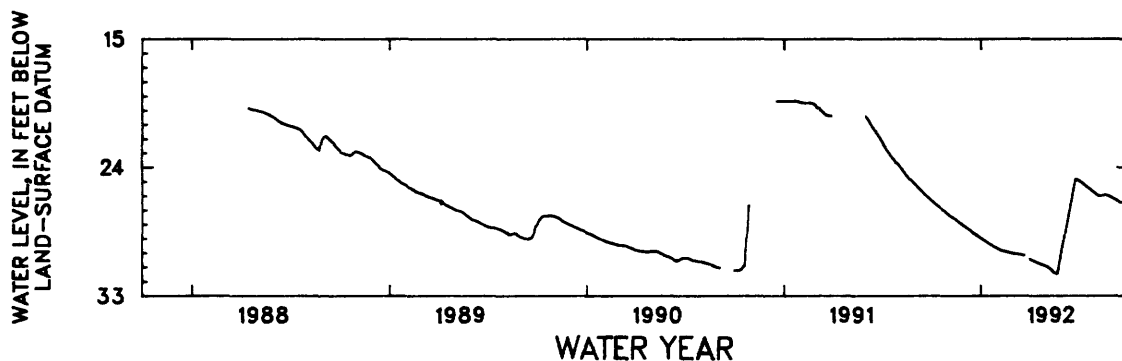
PERIOD OF RECORD.--April 14, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.34 ft (5.89 m) below land-surface datum, Dec. 18, 1990 to Jan. 26, 1991; lowest water level recorded, 31.45 ft (9.58 m) below land-surface datum, May 21-22, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.28	27.28	28.12	28.96	29.69	30.28	27.44	27.68	---	24.94	25.86	26.14
2	26.32	27.32	28.14	28.98	29.72	30.30	27.44	27.69	---	24.95	25.89	26.16
3	26.35	27.35	28.17	29.00	29.74	30.32	27.45	27.70	---	24.97	25.92	26.18
4	26.39	27.38	28.21	29.03	29.76	30.33	27.46	27.71	---	25.00	25.94	26.21
5	26.42	27.41	28.23	29.05	29.78	30.35	27.47	27.73	---	25.03	25.97	26.22
6	26.45	27.44	28.25	29.08	29.80	30.37	27.48	27.75	---	25.07	25.99	26.24
7	26.48	27.47	28.28	29.11	29.82	30.39	27.49	27.78	---	25.10	25.99	26.26
8	26.52	27.50	28.30	29.14	29.84	30.40	27.50	27.79	---	25.13	25.99	26.28
9	26.56	27.52	28.32	29.16	29.86	30.42	27.51	27.82	---	25.16	25.99	26.31
10	26.59	27.52	28.35	29.18	29.88	30.44	27.52	27.85	---	25.19	25.98	26.33
11	26.62	27.54	28.39	29.20	29.91	30.45	27.53	27.86	---	25.22	25.97	26.35
12	26.66	27.57	28.42	29.23	29.93	30.47	27.54	27.88	---	25.25	25.97	26.37
13	26.69	27.60	28.46	29.25	29.95	30.49	27.56	27.93	---	25.28	25.96	26.39
14	26.72	27.63	28.48	29.27	29.96	30.51	27.57	27.99	---	25.31	25.94	26.40
15	26.74	27.66	28.50	29.30	29.99	30.53	27.57	28.01	---	25.34	25.93	26.43
16	26.78	27.69	28.54	29.33	30.01	30.54	27.58	28.03	---	25.38	25.92	26.43
17	26.82	27.72	28.57	29.35	30.03	30.56	27.59	28.03	---	25.41	25.92	26.42
18	26.85	27.74	28.59	29.38	30.05	30.58	27.60	28.04	---	25.44	25.92	26.43
19	26.87	27.78	28.62	29.40	30.07	30.59	27.61	28.04	---	25.47	25.92	26.44
20	26.91	27.81	28.65	29.43	30.09	30.61	27.61	28.04	---	25.49	25.92	26.43
21	26.94	27.84	28.68	29.45	30.11	30.63	27.63	28.04	---	25.52	25.93	26.43
22	26.97	27.87	28.70	29.47	30.13	30.64	27.64	28.44	---	25.55	25.95	26.43
23	27.00	27.89	28.72	29.50	30.14	---	27.64	28.44	---	25.59	25.96	26.42
24	27.03	27.92	28.74	29.53	30.16	---	27.64	28.44	24.82	25.63	25.97	26.42
25	27.06	27.95	28.77	29.55	30.18	---	27.64	28.42	24.81	25.66	25.99	26.41
26	27.08	27.98	28.79	29.57	30.20	---	27.64	---	24.82	25.68	26.01	26.39
27	27.12	28.01	28.82	29.59	30.22	---	27.65	---	24.83	25.71	26.04	26.38
28	27.16	28.05	28.85	29.61	30.24	---	27.66	---	24.87	25.74	26.06	26.37
29	27.19	28.07	28.87	29.63	30.25	---	27.66	---	24.88	25.77	26.07	26.35
30	27.22	28.09	28.90	29.65	---	---	27.66	---	24.90	25.80	26.09	26.35
31	27.25	---	28.93	29.67	---	---	---	---	---	25.83	26.12	---
MEAN	26.78	27.69	28.53	29.32	29.98	30.46	27.57	27.97	24.85	25.37	25.97	26.35

WTR YR 1992 MEAN 27.67 HIGHEST 24.81 JUNE 24-26, 1992 LOWEST 30.65 MAR. 22-23, 1992



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

180001066122002 Local number, HW-TW-03C.

LOCATION.--Lat 18°00'01", long 66°12'20", Hydrologic Unit 21010004, 8.27 mi southwest of Cayey plaza, 2.38 mi southwest of Cerro Garau, and 3.45 mi southeast of Hwy 1 km 82.3. Owner: U.S. Geological Survey, WRD,  
 Name: HW-TW-03C.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-220 ft (0-67.0 m), cased 4 in (0.10 m), 0-150 ft (0-45.7 m), open hole 150-220 ft (45.7-67.0 m). Depth 220 ft (67.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 270 ft (82.6 m) above mean sea level.

Measuring point: Top of shelter floor, 3.32 ft (1.01 m) above land-surface datum.

REMARKS.--Recording observation well. Aquifer test performed during May 24, 25, 26, 1989.

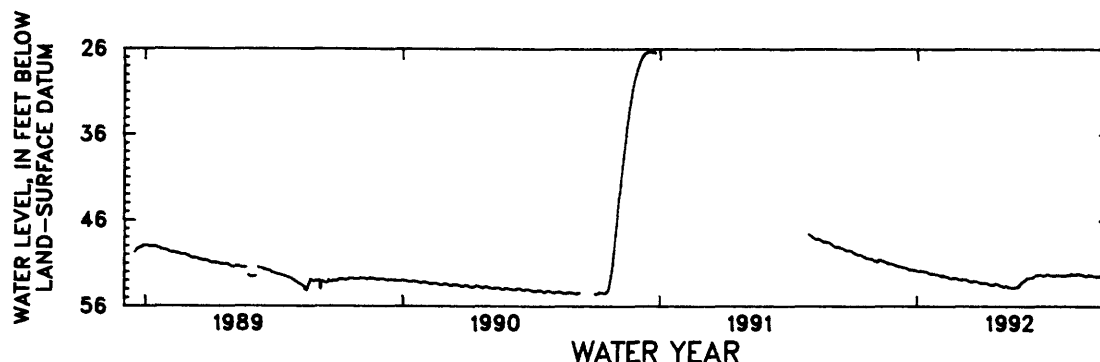
PERIOD OF RECORD.--December 15, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.29 ft (8.01 m) below land-surface datum, Dec. 15, 1990; lowest water level recorded, 54.60 ft (16.6 m) below land-surface datum, Oct. 3-4, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
 INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49.62	50.61	51.20	51.85	52.37	52.88	53.28	53.65	52.98	52.35	52.29	52.33
2	49.69	50.68	51.23	51.86	52.39	52.89	53.27	53.70	52.88	52.27	52.31	52.35
3	49.78	50.70	51.27	51.90	52.41	52.90	53.30	53.69	52.82	52.24	52.31	52.36
4	49.82	50.73	51.28	51.91	52.44	52.89	53.28	53.65	52.76	52.27	52.32	52.39
5	49.85	50.82	51.31	51.93	52.48	52.90	53.29	53.63	52.69	52.30	52.35	52.40
6	49.89	50.74	51.32	51.84	52.40	52.88	53.28	53.61	52.67	52.34	52.19	52.41
7	49.93	50.59	51.35	51.87	52.40	52.87	53.25	53.65	52.67	52.38	52.20	52.45
8	49.95	50.58	51.37	51.89	52.44	52.86	53.26	53.69	52.65	52.38	52.25	52.47
9	49.98	50.58	51.38	51.90	52.47	52.84	53.30	53.74	52.63	52.39	52.25	52.47
10	49.97	50.58	51.40	51.91	52.49	52.86	53.30	53.76	52.62	52.41	52.29	52.48
11	49.97	50.60	51.42	51.91	52.51	52.88	53.34	53.79	52.61	52.42	52.28	52.49
12	50.00	50.63	51.44	51.95	52.53	52.91	53.40	53.79	52.60	52.43	52.29	52.51
13	50.02	50.67	51.47	51.95	52.56	52.95	53.45	53.81	52.57	52.41	52.30	52.49
14	50.04	50.72	51.49	51.95	52.60	53.01	53.45	53.84	52.53	52.39	52.27	52.46
15	50.06	50.76	51.49	51.99	52.65	53.07	53.47	53.81	52.49	52.38	52.21	52.45
16	50.12	50.76	51.51	52.04	52.69	53.10	53.50	53.82	52.45	52.38	52.19	52.46
17	50.19	50.78	51.53	52.09	52.70	53.13	53.50	53.79	52.42	52.36	52.21	52.45
18	50.23	50.84	51.57	52.14	52.73	53.16	53.49	53.78	52.37	52.35	52.24	52.48
19	50.25	50.92	51.63	52.18	52.73	53.13	53.44	53.76	52.35	52.36	52.26	52.49
20	50.30	50.95	51.69	52.20	52.70	53.08	53.39	53.76	52.35	52.37	52.27	52.48
21	50.35	51.00	51.73	52.21	52.68	53.04	53.33	53.77	52.32	52.35	52.32	52.37
22	50.37	51.03	51.72	52.22	52.66	53.06	53.37	53.77	52.32	52.36	52.32	52.43
23	50.38	51.03	51.70	52.22	52.66	53.07	53.42	53.77	52.32	52.39	52.35	52.45
24	50.39	51.03	51.71	52.21	52.69	53.08	53.42	53.59	52.32	52.40	52.38	52.47
25	50.40	51.02	51.71	52.21	52.74	53.09	53.41	53.62	52.35	52.41	52.43	52.48
26	50.39	51.04	51.73	52.22	52.75	53.10	53.49	53.38	52.38	52.41	52.45	52.51
27	50.38	51.09	51.74	52.24	52.78	53.12	53.56	53.28	52.39	52.44	52.48	52.50
28	50.47	51.11	51.74	52.25	52.82	53.18	53.58	53.21	52.41	52.45	52.44	52.48
29	50.49	51.13	51.76	52.27	52.83	53.23	53.59	53.16	52.41	52.42	52.42	52.50
30	50.51	51.17	51.79	52.29	---	53.26	53.61	53.12	52.39	52.37	52.36	52.48
31	50.55	---	51.83	52.33	---	53.27	---	53.06	---	52.32	52.34	---
MEAN	50.14	50.83	51.53	52.06	52.60	53.02	53.40	53.63	52.52	52.37	52.31	52.45

WTR YR 1992 MEAN 52.24 HIGHEST 49.57 OCT. 1, 1991 LOWEST 53.85 MAY 14, 1992





## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

175947066130601 Local number, HW-TW-05B.

LOCATION.--Lat 17°59'47", long 66°13'06", Hydrologic Unit 21010004, 2.70 mi northeast of Central Aguirre Church, 6.16 mi northwest of Escuela de Guayama, and 2.70 mi northeast of Hwy 3 km 151.3. Owner: U.S. Geological Survey, WRD, Name: HW-TW-05B.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-52 ft (0-15.8 m), cased 4 in (0.10 m), 0-51 ft (0-15.5 m), screened 41-46 ft (12.5-14.0 m). Depth 52 ft (15.8 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 145 ft (44.2 m) above mean sea level.

Measuring point: Hole on side of casing, 3.00 ft (0.91 m) above land-surface datum. Prior October 13, 1989 top of shelter floor, 3.47 ft (1.06 m) above land-surface datum.

REMARKS.--Recording observation well.

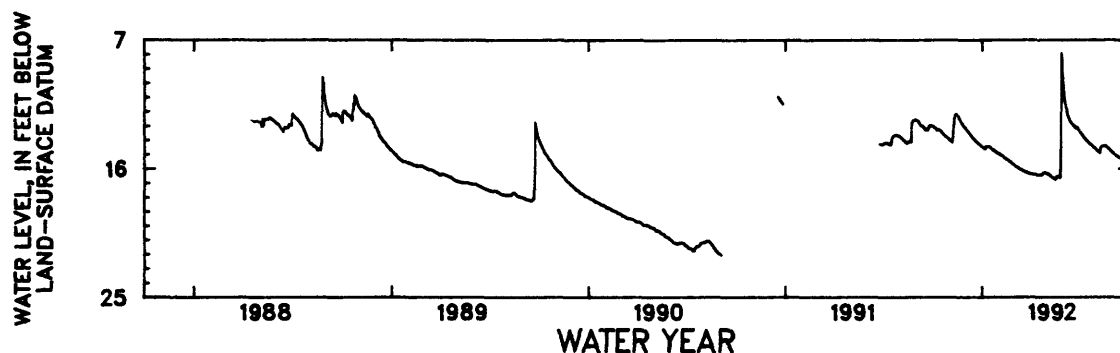
PERIOD OF RECORD.--April 13, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.89 ft (2.40 m) below land-surface datum, May 26, 1992; lowest water level recorded, 22.14 ft (6.75 m) below land-surface datum, Sept. 5, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.00	13.98	13.19	14.47	14.98	15.79	16.38	16.36	11.28	13.50	14.76	14.99
2	13.02	14.01	13.25	14.49	15.01	15.82	16.38	16.38	11.50	13.53	14.80	15.04
3	13.06	14.05	13.30	14.54	15.04	15.84	16.38	16.42	11.70	13.59	14.81	15.05
4	13.09	14.08	13.32	14.57	15.07	15.87	16.39	16.44	11.83	13.65	14.82	15.08
5	13.12	14.10	13.37	14.60	15.10	15.90	16.39	16.48	11.97	13.70	14.89	15.10
6	13.14	14.14	13.42	14.59	15.11	15.92	16.40	16.51	12.10	13.76	14.65	15.12
7	13.18	13.79	13.47	14.48	15.12	15.95	16.40	16.55	12.24	13.83	14.51	15.15
8	13.23	13.38	13.52	14.45	15.15	15.97	16.41	16.57	12.36	13.87	14.46	15.18
9	13.29	12.91	13.57	14.45	15.18	16.00	16.41	16.60	12.47	13.91	14.43	15.20
10	13.27	12.44	13.62	14.44	15.21	16.02	16.42	16.63	12.57	13.96	14.41	15.20
11	13.25	12.27	13.67	14.44	15.24	16.04	16.44	16.66	12.65	14.00	14.41	15.23
12	13.25	12.20	13.73	14.44	15.27	16.06	16.46	16.67	12.73	14.04	14.39	15.27
13	13.26	12.18	13.77	14.45	15.30	16.08	16.45	16.70	12.77	14.08	14.38	15.29
14	13.29	12.18	13.81	14.47	15.33	16.10	16.44	16.74	12.79	14.12	14.38	15.31
15	13.32	12.21	13.86	14.49	15.35	16.12	16.43	16.70	12.85	14.17	14.38	15.36
16	13.36	12.26	13.91	14.53	15.37	16.15	16.42	16.61	12.90	14.20	14.39	15.39
17	13.41	12.31	13.94	14.57	15.40	16.17	16.42	16.55	12.94	14.25	14.44	15.41
18	13.46	12.40	13.98	14.59	15.43	16.18	16.42	16.53	12.98	14.27	14.48	15.43
19	13.49	12.49	14.03	14.63	15.47	16.20	16.43	16.53	13.01	14.30	14.51	15.47
20	13.53	12.56	14.06	14.67	15.50	16.22	16.43	16.53	13.08	14.33	14.54	15.47
21	13.59	12.64	14.11	14.69	15.53	16.22	16.35	16.56	13.14	14.36	14.58	15.30
22	13.62	12.72	14.14	14.72	15.55	16.23	16.30	16.60	13.10	14.39	14.61	15.13
23	13.66	12.78	14.17	14.75	15.58	16.26	16.28	16.61	13.10	14.44	14.65	15.07
24	13.70	12.85	14.19	14.77	15.63	16.29	16.27	15.58	13.11	14.49	14.71	15.04
25	13.73	12.89	14.24	14.80	15.65	16.29	16.26	14.34	13.16	14.51	14.74	15.03
26	13.76	12.96	14.27	14.82	15.68	16.30	16.27	7.89	13.20	14.53	14.77	15.03
27	13.79	13.03	14.30	14.87	15.70	16.32	16.31	8.83	13.26	14.58	14.81	15.03
28	13.83	13.05	14.34	14.90	15.73	16.34	16.33	9.62	13.31	14.61	14.86	15.03
29	13.87	13.09	14.37	14.92	15.76	16.35	16.33	10.20	13.38	14.64	14.90	15.04
30	13.89	13.14	14.41	14.94	---	16.37	16.35	10.66	13.44	14.70	14.93	15.06
31	13.94	---	14.45	14.95	---	16.38	---	10.98	---	14.73	14.97	---
MEAN	13.43	12.97	13.86	14.63	15.36	16.12	16.38	15.13	12.70	14.16	14.62	15.18

WTR YR 1992 MEAN 14.54 HIGHEST 7.89 MAY 26, 1992 LOWEST 16.75 MAY, 14-15, 1992



GROUND-WATER LEVELS  
RIO SALINAS TO RIO JACAGUAS BASINS

175957066123400 Local number, HW-TW-13.

LOCATION.--Lat 17°59'57", long 66°12'34", Hydrologic Unit 21010004, 3.11 northeast of Central Aguirre Church, 5.76 mi northwest of Escuela de Guayama, and 2.03 mi northeast of Hwy 3 km 151.3. Owner: U.S. Geological Survey, WRD, Name: HW-TW-13.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-69 ft (0-21.0 m), cased 4 in (0.10 m), 0-69 ft (0-21.0 m), screened 4.0-69 ft (1.22-21.0 m). Depth 69 ft (21.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 203 ft (61.9 m) above mean sea level.

Measuring point: Hole on side of casing, 2.33 ft (0.71 m) above land-surface datum. Prior October 14, 1988, top of shelter floor, 3.47 ft (1.06 m) above land-surface datum.

REMARKS.--Recording observation well.

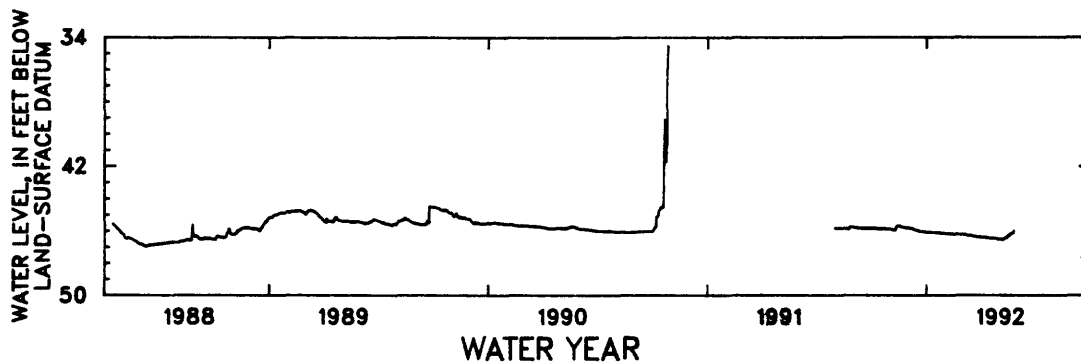
PERIOD OF RECORD.--April 14, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.39 ft (10.5 m) below land-surface datum, Oct. 27, 1990; lowest water level recorded, 47.74 ft (14.6 m) below land-surface datum, Sept. 15, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45.82	45.87	45.80	46.06	46.15	46.19	46.37	46.51	---	---	---	---
2	45.82	45.88	45.80	46.06	46.15	46.20	46.38	46.51	---	---	---	---
3	45.82	45.88	45.81	46.06	46.15	46.21	46.38	46.51	---	---	---	---
4	45.83	45.88	45.81	46.06	46.15	46.21	46.38	46.52	---	---	---	---
5	45.83	45.91	45.83	46.06	46.17	46.22	46.38	46.53	---	---	---	---
6	45.82	45.91	45.83	46.06	46.17	46.23	46.38	46.53	---	---	---	---
7	45.82	45.91	45.83	46.08	46.17	46.23	46.39	46.53	---	---	---	---
8	45.83	45.91	45.84	46.08	46.17	46.25	46.40	46.50	---	---	---	---
9	45.83	45.91	45.84	46.08	46.17	46.26	46.40	46.47	---	---	---	---
10	45.83	45.92	45.85	46.08	46.17	46.27	46.41	46.45	---	---	---	---
11	45.84	45.79	45.89	46.08	46.17	46.28	46.41	46.42	---	---	---	---
12	45.84	45.70	45.90	46.08	46.17	46.28	46.42	46.39	---	---	---	---
13	45.84	45.67	45.91	46.08	46.17	46.28	46.43	46.38	---	---	---	---
14	45.84	45.66	45.93	46.08	46.18	46.28	46.44	46.34	---	---	---	---
15	45.84	45.66	45.95	46.08	46.19	46.28	46.44	46.31	---	---	---	---
16	45.84	45.66	45.95	46.09	46.19	46.29	46.44	46.28	---	---	---	47.66
17	45.84	45.67	45.96	46.10	46.19	46.30	46.44	46.26	---	---	---	47.67
18	45.83	45.70	45.99	46.10	46.19	46.31	46.44	46.22	---	---	---	47.68
19	45.84	45.72	45.99	46.10	46.19	46.32	46.44	46.19	---	---	---	47.68
20	45.84	45.73	46.00	46.10	46.19	46.32	46.44	46.17	---	---	---	47.71
21	45.84	45.74	46.01	46.10	46.19	46.33	46.44	46.15	---	---	---	47.71
22	45.84	45.75	46.02	46.10	46.19	46.33	46.44	46.13	---	---	---	47.72
23	45.85	45.76	46.02	46.10	46.19	46.33	46.45	46.10	---	---	---	47.72
24	45.85	45.77	46.02	46.12	46.19	46.36	46.45	46.10	---	---	---	47.70
25	45.85	45.77	46.03	46.12	46.19	46.36	46.46	46.01	---	---	---	47.66
26	45.85	45.78	46.03	46.12	46.19	46.37	46.46	---	---	---	---	47.65
27	45.87	45.78	46.03	46.12	46.19	46.37	46.48	---	---	---	---	47.65
28	45.87	45.79	46.04	46.13	46.19	46.37	46.50	---	---	---	---	47.67
29	45.87	45.79	46.04	46.13	46.19	46.37	46.51	---	---	---	---	47.68
30	45.86	45.80	46.05	46.13	---	46.37	46.51	---	---	---	---	47.70
31	45.86	---	46.05	46.14	---	46.37	---	---	---	---	---	---
MEAN	45.84	45.79	45.94	46.09	46.18	46.29	46.43	46.34	---	---	---	47.68

WTR YR 1992 MEAN 46.20 HIGHEST 45.66 NOV. 14-17, 1991 LOWEST 47.74 SEPT. 15, 1992



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

175946066102000 Local number, HW-TW-14.

LOCATION.--Lat 17°59'46", long 66°10'20", Hydrologic Unit 21010004, 4.42 northeast of Central Aguirre Church, 3.41 mi northwest of Escuela de Guayama, and 2.01 mi northeast of Hwy 3 km 146.3. Owner: U.S. Geological Survey, WRD, Name: HW-TW-14.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-79 ft (0-24.4 m), cased 4 in (0.10 m), 0-79 ft (0-24.1 m), screened 71-78 ft (21.6-23.8 m). Depth 79 ft (24.1 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 205 ft (62.5 m) above mean sea level.

Measuring point: Hole on side of casing, 3.02 ft (0.92 m) above land-surface datum. Prior October 7, 1988, top of shelter floor, 3.67 ft (1.12 m) above land-surface datum.

REMARKS.--Recording Observation well. Well dry at 73.56 ft (22.42 m).

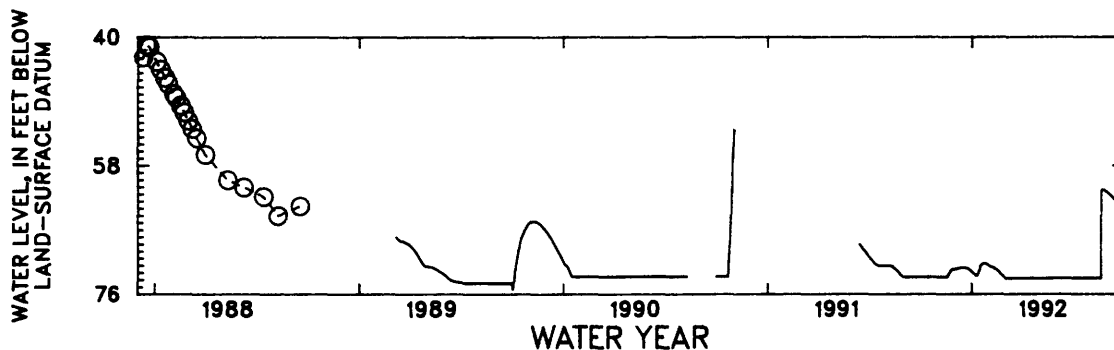
PERIOD OF RECORD.--December 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 41.1 ft (12.5 m) below land-surface datum, Dec. 17, 1987; lowest water level recorded, 75.35 ft (23.0 m) below land-surface datum, Oct. 2, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73.61	73.61	72.49	72.93	72.03	73.79	73.81	73.81	73.76	73.76	73.76	61.86
2	73.61	73.61	72.48	72.97	72.08	73.80	73.81	73.81	73.76	73.76	73.76	61.92
3	73.61	73.61	72.46	73.03	72.14	73.80	73.81	73.81	73.76	73.76	73.76	62.02
4	73.61	73.60	72.45	73.13	72.20	73.80	73.81	73.81	73.76	73.76	73.76	62.11
5	73.61	73.60	72.42	73.20	72.24	73.80	73.81	73.81	73.76	73.76	73.76	62.18
6	73.61	73.60	72.40	73.28	72.26	73.80	73.81	73.81	73.76	73.76	73.76	62.24
7	73.61	73.60	72.37	73.36	72.27	73.80	73.81	73.81	73.76	73.76	73.76	62.32
8	73.61	73.60	72.35	73.43	72.28	73.80	73.81	73.81	73.76	73.76	73.76	62.40
9	73.61	73.60	72.33	73.44	72.28	73.80	73.81	73.81	73.76	73.76	73.76	62.46
10	73.61	73.60	72.31	73.43	72.36	73.80	73.81	73.81	73.76	73.76	73.76	62.56
11	73.61	73.60	72.31	73.34	72.45	73.80	73.81	73.81	73.76	73.76	73.76	62.61
12	73.61	73.60	72.30	73.11	72.50	73.80	73.81	73.81	73.76	73.76	73.76	62.69
13	73.61	73.60	72.29	72.85	72.54	73.80	73.81	73.81	73.76	73.76	73.76	62.76
14	73.61	73.60	72.28	72.67	72.59	73.80	73.81	73.81	73.76	73.76	73.76	62.80
15	73.61	73.60	72.29	72.51	72.64	73.80	73.81	73.81	73.76	73.76	73.76	62.88
16	73.61	73.60	72.29	72.06	72.71	73.80	73.81	73.81	73.76	73.76	73.76	62.97
17	73.61	73.61	72.29	71.96	72.79	73.80	73.81	73.81	73.76	73.76	73.76	63.06
18	73.61	73.54	72.30	71.88	72.87	73.80	73.81	73.81	73.76	73.76	73.76	63.16
19	73.61	73.34	72.30	71.81	72.95	73.80	73.81	73.81	73.76	73.76	73.76	63.28
20	---	73.18	72.30	71.76	73.03	73.80	73.81	73.81	73.76	73.76	61.39	63.40
21	---	73.06	72.33	71.73	73.10	73.80	73.81	73.81	73.76	73.76	61.37	63.52
22	---	72.86	72.34	71.70	73.18	73.80	73.81	73.79	73.76	73.76	61.36	63.55
23	---	72.74	72.37	71.70	73.26	73.80	73.81	73.78	73.76	73.76	61.37	63.55
24	73.61	72.66	72.39	71.70	73.33	73.80	73.81	73.78	73.76	73.76	61.41	63.55
25	73.61	72.61	72.45	71.71	73.42	73.80	73.81	73.78	73.76	73.76	61.44	63.53
26	73.61	72.54	72.50	71.74	73.49	73.80	73.81	73.77	73.76	73.76	61.49	63.53
27	73.61	72.53	72.56	71.78	73.57	73.80	73.81	73.77	73.76	73.76	61.55	63.51
28	73.61	72.51	72.61	71.84	73.65	73.81	73.81	73.76	73.76	73.76	61.59	63.50
29	73.61	72.50	72.66	71.88	73.73	73.81	73.81	73.76	73.76	73.76	61.65	63.49
30	73.61	72.48	72.73	71.91	---	73.81	73.81	73.76	73.76	73.76	61.71	63.48
31	73.61	---	72.83	71.96	---	73.81	---	73.76	---	73.76	61.79	---
MEAN	73.61	73.26	72.41	72.45	72.76	73.80	73.81	73.80	73.76	73.76	69.02	62.90

WTR YR 1992 MEAN 72.10 HIGHEST 61.36 AUG. 21-23, 1992 LOWEST 73.81 MAR. 27 TO MAY 22, 1992



GROUND-WATER LEVELS  
RIO SALINAS TO RIO JACAGUAS BASINS

180206066135500. Local number, RM # 5.

LOCATION.--Lat 18°02'06", long 66°13'55", Hydrologic Unit 21010004, 6.98 mi southwest of Cayey plaza, 0.63 mi east of Hwy 1 km 82.3 on Rabo del Buey, and 1.75 mi southeast of Capilla de Santa Marta. Owner: U.S. Geological Survey, WRD, Name: RM # 5.

AQUIFER.--Quaternary alluvium.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-34 ft (0-10.4 m), screened 24-34 ft (7.32-10.7 m). Depth 34 ft (10.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 276.35 ft (84.2 m) above mean sea level.

Measuring point: Top of shelter floor, 3.28 ft (1.0 m) above land-surface datum.

REMARKS.--Recording observation well. Pumping test performed during February 2, 7, 1990.

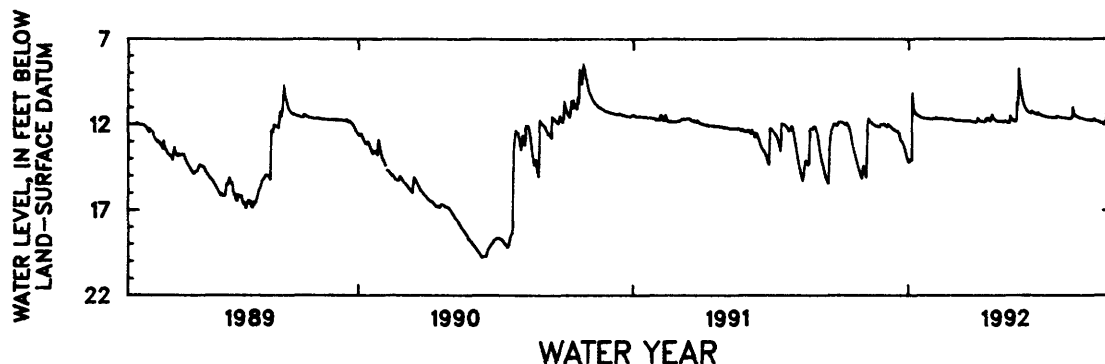
PERIOD OF RECORD.--March 9, 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.48 ft (2.28 m) below land-surface datum, May 26, 1992; lowest water level recorded, 19.87 ft (6.06 m) below land-surface datum, June 14, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.87	14.62	12.06	14.20	11.68	11.74	11.81	11.81	10.71	11.56	11.68	11.74
2	11.86	14.43	12.10	14.17	11.68	11.76	11.63	11.82	10.85	11.57	11.69	11.78
3	11.85	14.52	12.13	14.09	11.68	11.77	11.71	11.81	10.95	11.59	11.66	11.71
4	11.87	14.71	12.13	14.05	11.68	11.77	11.77	11.84	11.06	11.59	11.68	11.74
5	11.89	14.91	11.99	14.07	11.68	11.78	11.80	11.86	11.13	11.59	11.59	11.80
6	11.90	15.08	12.07	10.13	11.69	11.78	11.82	11.88	11.19	11.59	10.98	11.81
7	11.93	12.83	12.08	10.87	11.60	11.78	11.83	11.82	11.25	11.60	11.32	11.81
8	11.99	11.96	12.12	11.13	11.62	11.78	11.84	11.82	11.28	11.61	11.42	11.83
9	12.03	11.62	12.16	11.26	11.65	11.78	11.84	11.85	11.30	11.61	11.48	11.83
10	11.96	11.74	12.21	11.34	11.65	11.78	11.85	11.88	11.32	11.61	11.52	11.83
11	11.93	11.82	12.25	11.39	11.65	11.79	11.87	11.90	11.34	11.62	11.56	11.90
12	12.00	11.87	12.30	11.43	11.66	11.79	11.85	11.92	11.22	11.61	11.57	11.92
13	12.09	11.89	12.33	11.47	11.66	11.81	11.66	11.92	11.26	11.63	11.59	---
14	12.17	11.96	12.34	11.50	11.67	11.81	11.72	11.93	11.28	11.63	11.62	---
15	12.30	12.00	12.38	11.52	11.67	11.82	11.64	11.50	11.34	11.63	11.63	11.92
16	12.61	12.02	12.41	11.55	11.68	11.81	11.67	11.63	11.37	11.55	11.64	11.93
17	12.87	12.05	12.40	11.58	11.68	11.81	11.74	11.68	11.39	11.56	11.65	11.88
18	13.14	12.07	12.39	11.60	11.69	11.81	11.78	11.76	11.40	11.57	11.66	11.84
19	13.26	12.11	12.53	11.61	11.69	11.80	11.80	11.78	11.42	11.59	11.67	11.86
20	13.48	12.10	12.74	11.62	11.69	11.80	11.57	11.81	11.44	11.60	11.68	10.99
21	13.67	12.12	12.92	11.64	11.70	11.80	11.44	11.83	11.32	11.61	11.69	11.25
22	13.82	12.15	12.94	11.65	11.72	11.80	11.60	11.85	11.39	11.62	11.71	11.49
23	14.01	12.15	13.01	11.66	11.72	11.80	11.66	11.75	11.42	11.63	11.72	11.57
24	14.16	12.15	13.07	11.66	11.72	11.83	11.70	10.64	11.45	11.63	11.73	11.62
25	14.32	11.99	13.21	11.66	11.68	11.83	11.75	10.91	11.47	11.63	11.74	11.65
26	14.49	12.00	13.33	11.65	11.68	11.83	11.79	8.72	11.49	11.64	11.75	11.67
27	14.63	12.01	13.45	11.65	11.68	11.85	11.81	9.49	11.51	11.66	11.75	11.70
28	14.79	12.01	13.64	11.67	11.68	11.84	11.82	9.75	11.53	11.66	11.77	11.72
29	14.93	11.98	13.83	11.68	11.74	11.88	11.83	10.01	11.53	11.66	11.75	11.73
30	15.06	11.97	14.00	11.68	---	11.90	11.83	10.27	11.54	11.67	11.77	11.75
31	15.15	---	14.15	11.68	---	11.90	---	10.50	---	11.68	11.78	---
MEAN	13.03	12.56	12.67	11.90	11.68	11.81	11.75	11.35	11.30	11.61	11.63	11.72

WTR YR 1992 MEAN 11.92 HIGHEST 7.48 MAY 26, 1992 LOWEST 15.17 OCT. 31, 1991



## GROUND-WATER LEVELS

## RIO SALINAS TO RIO JACAGUAS BASINS

180104066152300. Local number, RM # 10.

LOCATION.--Lat 18°01'04", long 66°15'23", Hydrologic Unit 21010004, 8.00 mi southeast of Coamo plaza, 1.07 mi northeast of Escuela de Coco, and 0.70 mi southwest of Escuela Sabana Llana. Owner: U.S. Geological Survey, WRD, Name: RM # 10.

AQUIFER.--Quaternary alluvium.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-37 ft (0-11.3 m), screened 27-37 ft (8.23-11.3 m). Depth 37 ft (11.3 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is 164.13 ft (50.0 m) above mean sea level, from leveling survey.

Measuring point: Top of shelter floor, 3.62 ft (1.10 m) above land-surface datum.

REMARKS.--Recording observation well. Pumping test performed on February 8, 1990.

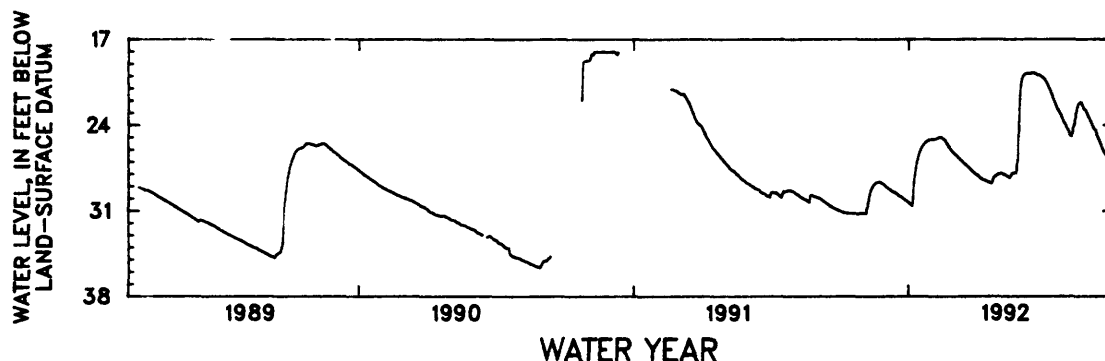
PERIOD OF RECORD.--March 13, 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.0 ft (5.49 m) below land-surface datum, Nov. 9, 1990; lowest water level recorded, 35.56 ft (10.8 m) below land-surface datum, Aug. 28-29, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.98	31.19	28.99	30.37	25.16	26.30	28.10	27.96	20.03	20.40	24.61	24.05
2	31.01	31.19	29.05	30.42	25.16	26.37	28.15	27.95	19.93	20.50	24.75	24.18
3	31.04	31.19	29.10	30.47	25.15	26.41	28.20	27.95	19.86	20.62	24.86	24.32
4	31.07	31.19	29.15	30.53	25.14	26.47	28.24	27.96	19.82	20.75	24.90	24.36
5	31.09	31.19	29.20	30.59	25.13	26.53	28.30	27.97	19.79	20.89	24.89	24.45
6	31.12	31.19	29.25	30.35	25.11	26.60	28.35	28.00	19.78	21.01	24.32	24.62
7	31.13	30.74	29.29	29.31	25.10	26.67	28.39	28.03	19.78	21.13	24.09	24.80
8	31.15	30.34	29.34	28.61	25.07	26.73	28.42	28.06	19.79	21.28	23.89	24.95
9	31.17	30.05	29.38	28.11	25.03	26.79	28.45	28.10	19.78	21.46	23.51	25.09
10	31.18	29.74	29.41	27.68	25.00	26.86	28.48	28.13	19.78	21.65	23.07	25.25
11	31.19	29.46	29.45	27.33	24.98	26.92	28.51	28.17	19.78	21.84	22.78	25.40
12	31.20	29.28	29.48	27.04	24.97	26.97	28.53	28.21	19.76	22.01	22.55	25.55
13	31.20	29.15	29.51	26.78	24.99	27.03	28.56	28.25	19.73	22.16	22.35	25.70
14	31.20	29.04	29.55	26.51	25.01	27.09	28.58	28.29	19.72	22.30	22.26	25.85
15	31.20	28.94	29.58	26.31	25.07	27.15	28.61	28.22	19.73	22.46	22.19	25.99
16	31.20	28.85	29.61	26.13	25.12	27.21	28.64	28.08	19.77	22.62	22.15	26.10
17	31.20	28.78	29.64	25.98	25.16	27.26	28.67	27.96	19.78	22.72	22.14	26.23
18	31.21	28.72	29.74	25.86	25.23	27.31	28.70	27.93	19.81	22.82	22.19	26.34
19	31.21	28.69	29.77	25.75	25.31	27.38	28.73	27.92	19.84	22.93	22.39	26.44
20	31.21	28.66	29.81	25.64	25.43	27.45	28.75	27.91	19.88	23.06	22.58	26.54
21	31.21	28.64	29.85	25.56	25.54	27.49	28.67	27.89	19.92	23.20	22.70	26.23
22	31.21	28.64	29.88	25.48	25.61	27.56	28.44	27.89	19.90	23.33	22.70	25.78
23	31.21	28.64	29.92	25.42	25.73	27.62	28.29	27.88	19.93	23.46	22.78	25.43
24	31.20	28.67	29.97	25.37	25.83	27.67	28.21	27.09	19.97	23.60	22.90	25.14
25	31.20	28.68	30.02	25.33	25.94	27.74	28.17	26.80	20.01	23.73	23.04	24.93
26	31.20	28.73	30.06	25.29	26.01	27.79	28.12	24.69	20.05	23.85	23.21	24.77
27	31.20	28.78	30.11	25.26	26.09	27.86	28.08	22.49	20.10	23.97	23.37	24.63
28	31.20	28.82	30.15	25.21	26.18	27.91	28.03	21.44	20.17	24.10	23.47	24.59
29	31.20	28.88	30.20	25.19	26.24	27.96	27.99	20.83	20.23	24.23	23.63	24.60
30	31.20	28.93	30.26	25.17	---	28.01	27.97	20.45	20.30	24.35	23.75	24.65
31	31.20	---	30.30	25.17	---	28.07	---	20.19	---	24.47	23.88	---
MEAN	31.17	29.50	29.65	27.04	25.36	27.20	28.38	26.73	19.89	22.48	23.29	25.23

WTR YR 1992 MEAN 26.34 HIGHEST 19.72 JUNE 13-15, 1992 LOWEST 31.21 OCT. 17-24, 1991



## GROUND-WATER LEVELS

## RIO INABON TO RIO LOCO BASINS

180133066503300. Local number, 132.

LOCATION.--Lat 18°01'33", long 66°50'33", Hydrologic Unit 21010004, 0.90 mi southeast of Yauco plaza, 3.46 mi east of Guayanilla plaza, and 1.32 mi north of Escuela Segunda Unidad Barinas. Owner: Pittsburg Plate Glass 4, Name: Yauco 2.

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Drilled observation well, cased 20 in (0.51 m) 0-20 ft (0-6.1 m), 12 in (0.30 m) perforated pipe 20-84 ft (6.1-25.61 m), 10 in (0.25 m) perforated pipe 84-190 ft (25.61-57.93 m). Depth 190 ft (57.93 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 75 ft (22.87 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.35 ft (0.72 m) above land-surface datum.

REMARKS.--Recording observation well.

PERIOD OF RECORD.--July 1972 to current year.

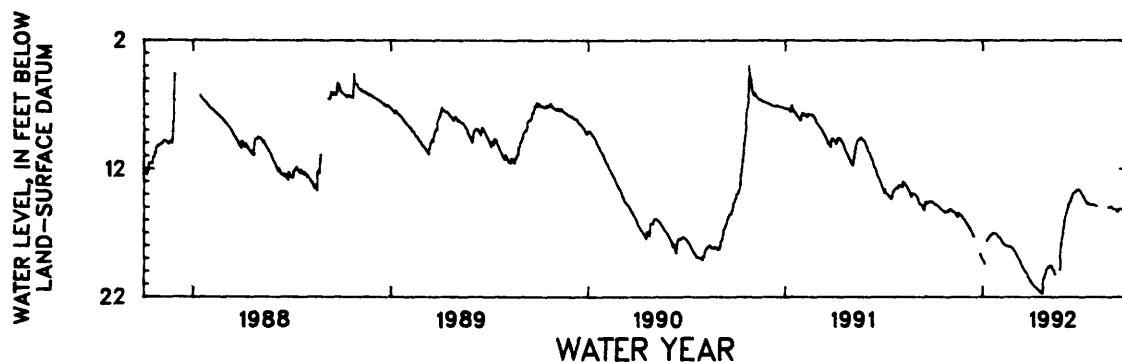
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.12 ft (0.04 m) below land-surface datum, July 19, 1979; lowest water level recorded, 36.91 ft (11.25 m) below land-surface datum, June 27, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.58	15.18	16.08	19.09	17.32	18.49	20.90	19.67	15.91	13.86	---	15.17
2	14.63	15.18	16.18	19.17	17.35	18.57	20.97	19.63	15.70	13.91	---	15.20
3	14.69	15.18	16.27	19.25	17.42	18.64	21.03	19.60	15.52	14.01	---	15.24
4	14.74	15.23	16.34	19.35	17.51	18.70	21.09	19.58	15.37	14.10	---	15.28
5	14.79	15.29	16.40	19.41	17.63	18.79	21.16	19.56	15.20	14.14	---	15.30
6	14.84	15.33	16.45	---	17.72	18.87	21.21	19.56	15.04	14.20	---	15.37
7	14.80	15.37	16.50	---	17.80	18.95	21.27	19.60	14.91	14.30	---	15.31
8	14.79	15.38	16.62	17.61	17.81	19.06	21.29	19.67	14.78	14.40	---	15.16
9	14.81	15.40	16.66	17.59	17.84	19.15	21.30	19.82	14.74	14.50	---	15.15
10	14.87	15.43	16.68	17.51	17.89	19.23	21.33	19.87	14.63	14.55	---	15.15
11	14.94	15.47	16.82	17.44	17.93	19.37	21.39	19.90	14.54	14.62	---	15.15
12	14.98	15.53	16.93	17.40	17.98	19.47	21.42	19.98	14.45	14.68	---	15.15
13	15.02	15.59	17.04	17.31	18.00	19.55	21.48	20.17	14.29	14.72	---	15.15
14	15.08	15.66	17.18	17.24	18.01	19.64	21.50	20.22	14.16	14.77	---	15.15
15	15.12	15.70	17.20	17.19	18.03	19.71	21.54	---	14.04	14.68	---	15.14
16	15.13	15.77	17.27	17.14	18.02	19.77	21.61	---	13.94	14.75	---	15.10
17	15.17	15.57	---	17.11	18.03	19.86	21.66	---	13.88	14.77	---	15.10
18	15.24	15.45	---	17.07	18.07	19.91	21.67	---	13.85	14.79	---	15.08
19	15.31	15.52	---	17.05	18.09	19.97	21.68	---	13.82	14.80	---	15.07
20	15.32	15.55	---	17.05	18.06	20.03	21.71	---	13.79	14.80	---	15.04
21	15.32	15.60	---	17.03	18.06	20.06	21.55	---	13.76	14.80	15.02	14.97
22	15.32	15.62	---	17.02	18.10	20.14	20.61	---	13.69	14.80	14.97	14.92
23	15.39	15.66	---	17.02	18.10	20.19	20.56	19.88	13.65	14.80	14.97	14.75
24	15.38	15.69	---	17.03	18.14	20.28	20.45	18.17	13.65	14.81	14.97	14.72
25	15.38	15.76	---	17.05	18.19	20.39	20.28	17.97	13.65	14.81	14.98	14.68
26	15.33	15.83	---	17.08	18.25	20.47	20.14	17.52	13.62	14.82	15.02	14.36
27	15.30	15.89	---	17.14	18.29	20.54	20.00	17.29	13.63	14.83	15.08	14.38
28	15.30	15.94	18.69	17.23	18.36	20.61	19.87	17.04	13.67	14.88	15.12	14.38
29	15.31	15.97	18.76	17.29	18.42	20.71	19.79	16.75	13.70	14.88	15.14	14.27
30	15.33	16.04	18.87	17.30	---	20.77	19.72	16.45	13.78	14.89	15.15	14.27
31	15.15	---	18.99	17.30	---	20.84	---	16.17	---	---	15.16	---
MEAN	15.08	15.56	17.10	17.57	17.95	19.70	21.01	18.87	14.31	14.59	15.05	14.97

WTR YR 1992 MEAN 16.86 HIGHEST 13.62 JUNE 26-27, 1992 LOWEST 21.73 APR. 20-21, 1992

+ Above land-surface datum.



## GROUND-WATER LEVELS

## RIO INABON TO RIO LOCO BASINS

175950066354200. Local number, 141.

LOCATION.--Lat 17°59'50", long 66°35'42", Hydrologic Unit 21010004, 1.71 mi southeast of Plaza Degetau at Ponce, 1.31 mi southeast of the intersection between Hwy 10 and Hwy 2, and 2.60 mi northeast of Muellie de Ponce.

Owner: P.R. Aqueduct and Sewer Authority, Name: Restaurada 8A.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused public supply well, diameter 16-10 in (0.41-0.25 m), cased 16 in (0.41 m) 2-20 ft (0.6-6.1 m), perforated 20-130 ft (6.10-39.6 m), 10 in (0.25 m) 128-165 ft (39.0-50.3 m), perforated. Depth 165 ft (50.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 24 ft (7.30 m) above mean sea level, from topographic map.

Measuring point: Bottom edge of hole on side of casing 1.90 ft (0.58 m) above land-surface datum, 26.2 ft (7.67 m), above mean sea level..

REMARKS.--Recording observation well.

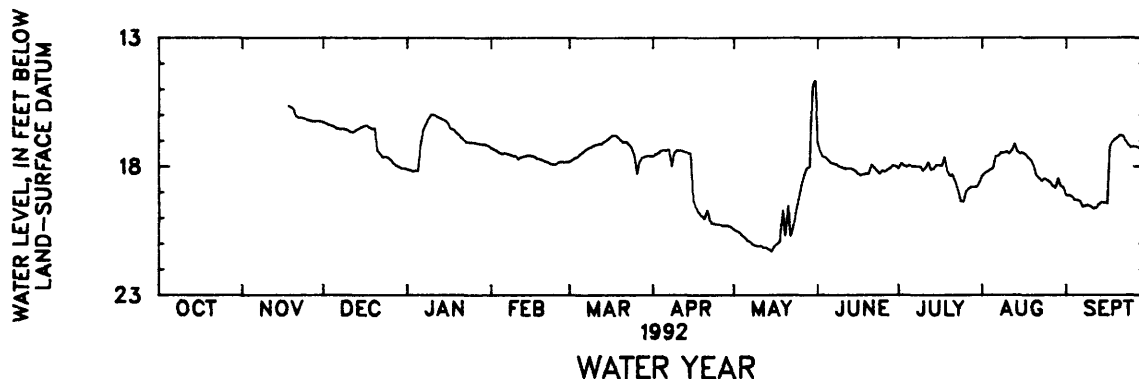
PERIOD OF RECORD.--October 1981 to March 1, 1986, discontinued, November 18, 1991 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.2 ft (3.41 m) below land-surface datum, Oct. 9, 1985; lowest water level recorded, 28.6 ft (8.71 m) below land-surface datum, July 9, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	16.28	18.11	17.28	17.81	17.60	20.43	17.09	18.07	18.35	19.14
2	---	---	16.33	18.14	17.33	17.75	17.52	20.50	17.41	17.87	18.25	19.12
3	---	---	16.38	18.18	17.38	17.67	17.47	20.55	17.62	17.97	18.18	19.17
4	---	---	16.41	18.17	17.46	17.62	17.38	20.67	17.64	18.00	18.11	19.31
5	---	---	16.45	18.17	17.50	17.52	17.36	20.75	17.76	17.95	18.06	19.31
6	---	---	16.52	17.15	17.48	17.44	17.37	20.88	17.86	17.99	17.59	19.34
7	---	---	16.54	16.55	17.51	17.35	17.33	20.92	17.89	17.99	17.58	19.56
8	---	---	16.53	16.35	17.54	17.28	18.01	21.02	17.92	18.00	17.45	19.53
9	---	---	16.55	16.12	17.58	17.24	17.45	21.08	18.00	18.01	17.46	19.51
10	---	---	16.59	15.98	17.59	17.18	17.37	21.10	18.03	18.17	17.43	19.56
11	---	---	16.66	16.00	17.71	17.14	17.37	21.09	18.08	18.04	17.49	19.63
12	---	---	16.67	16.07	17.64	17.12	17.40	21.15	18.08	17.82	17.37	19.61
13	---	---	16.59	16.12	17.61	17.11	17.44	21.16	18.07	18.13	17.10	19.47
14	---	---	16.53	16.17	17.58	17.02	17.47	21.22	18.11	18.08	17.44	19.39
15	---	---	16.48	16.23	17.56	16.95	17.49	21.29	18.17	17.94	17.50	19.41
16	---	---	16.43	16.32	17.58	16.87	19.34	21.09	18.29	17.95	17.47	19.43
17	---	---	16.40	16.53	17.61	16.78	19.61	21.00	18.34	17.97	17.54	19.23
18	---	15.64	16.48	16.55	17.69	16.78	19.80	20.92	18.30	17.62	17.66	17.04
19	---	15.70	16.53	16.67	17.72	16.86	19.93	19.69	18.27	18.18	17.76	16.93
20	---	15.78	16.51	16.76	17.75	16.97	20.03	20.70	18.27	18.36	17.97	16.86
21	---	16.06	17.40	16.88	17.81	17.06	19.68	19.51	17.92	18.31	18.36	16.78
22	---	16.10	17.50	16.97	17.83	17.04	20.10	20.71	18.05	18.60	18.45	16.81
23	---	16.10	17.64	17.05	17.90	17.14	20.22	20.37	18.17	18.94	18.56	17.01
24	---	16.14	17.62	17.07	17.92	17.27	20.23	19.68	18.28	19.36	18.46	17.17
25	---	16.19	17.66	17.07	17.91	17.54	20.25	19.24	18.16	19.37	18.54	17.26
26	---	16.22	17.74	17.08	17.84	18.30	20.26	18.69	18.19	18.94	18.60	17.23
27	---	16.24	17.88	17.11	17.81	17.79	20.30	18.31	18.11	18.85	18.75	17.23
28	---	16.25	17.97	17.13	17.83	17.64	20.29	18.05	18.05	18.79	18.83	17.29
29	---	16.23	18.02	17.15	17.82	17.61	20.30	18.00	17.95	18.79	18.45	17.31
30	---	16.26	18.07	17.16	---	17.57	20.34	14.83	17.99	18.79	18.77	19.02
31	---	---	18.08	17.20	---	17.59	---	14.64	---	18.60	18.82	---
MEAN	---	16.07	16.95	16.91	17.65	17.32	18.76	19.98	18.00	18.30	18.01	18.39

WTR YR 1992 MEAN 17.95 HIGHEST 13.9 MAY. 31, 1992 LOWEST 21.34 MAY 15, 1992



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180132067033800. Local number, 143.

LOCATION.--Lat 18°01'32", long 67°03'38", Hydrologic Unit 21010003, 1.86 mi south of Lajas plaza, 1.27 mi southeast of the Estación Experimental Agrícola, and 1.30 mi northwest of the intersection of Hwy 116 with Hwy 305.

Owner: Pedro P. Vivoni, Name: Vivoni, Hacienda Amistad.

AQUIFER.--Limestone of unknown age.

WELL CHARACTERISTICS.--Drilled unused irrigation well, diameter 12 in (0.30 m). Depth 200 ft (60.98 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 52.5 ft (16.0 m) above mean sea level, from topographic map.

Measuring point: Hole side of casing, 0.80 ft (0.24 m) above land-surface datum.

REMARKS.--Recording observation well.

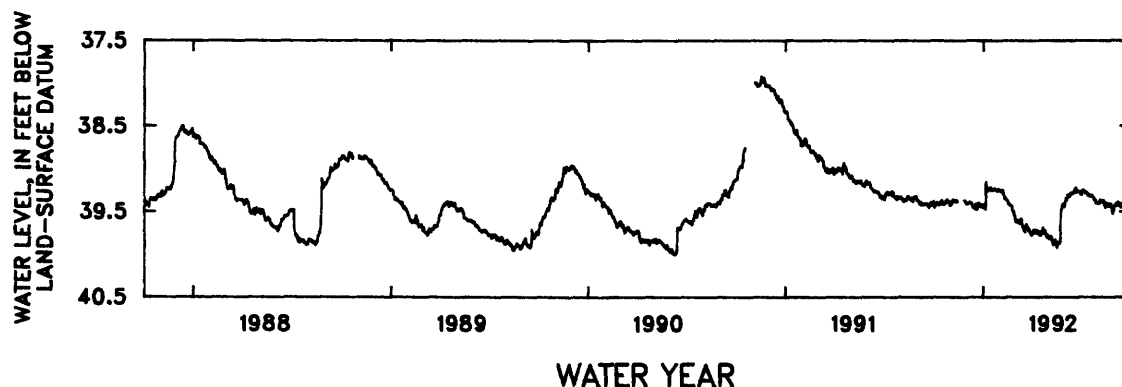
PERIOD OF RECORD.--December 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 37.36 ft (11.39 m) below land-surface datum, Nov. 20, 1985; lowest water level recorded, 40.0 ft (12.2 m) below land-surface datum, June 9-11, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39.38	39.43	39.41	39.45	39.25	39.62	39.76	39.80	39.36	39.30	39.40	39.42
2	39.41	39.42	39.41	39.42	39.25	39.62	39.73	39.82	39.34	39.26	39.40	39.41
3	39.45	39.42	39.41	39.44	39.25	39.62	39.72	39.81	39.36	39.25	39.39	39.40
4	39.44	39.40	39.39	39.43	39.27	39.61	39.71	39.79	39.34	39.25	39.36	39.43
5	39.40	39.38	39.40	39.47	39.27	39.60	39.73	39.79	39.30	39.25	39.39	39.41
6	39.40	39.36	39.40	39.15	39.25	39.61	39.75	39.80	39.31	39.26	39.38	39.39
7	39.39	39.37	39.39	39.20	39.25	39.63	39.75	39.84	39.32	39.27	39.37	39.40
8	39.40	39.38	39.40	39.24	39.30	39.64	39.71	39.86	39.32	39.27	39.39	39.40
9	39.42	39.38	39.40	39.26	39.34	39.63	39.72	39.89	39.31	39.27	39.38	39.41
10	39.42	39.38	39.40	39.24	39.34	39.61	39.72	39.88	39.29	39.28	39.37	39.44
11	39.40	39.37	39.42	39.24	39.34	39.58	39.72	39.87	39.28	39.28	39.39	39.45
12	39.41	39.37	39.43	39.25	39.36	39.60	39.76	39.85	39.29	39.31	39.43	39.45
13	39.42	39.37	39.45	39.23	39.36	39.65	39.77	39.83	39.29	39.31	39.45	39.43
14	39.39	39.39	39.44	39.22	39.37	39.68	39.75	39.86	39.28	39.30	39.43	39.41
15	39.37	---	39.44	39.22	39.38	39.68	39.73	39.88	39.28	39.30	39.42	39.40
16	39.37	---	39.45	39.24	39.41	39.69	39.78	39.92	39.27	39.32	39.40	39.40
17	39.40	---	39.47	39.25	39.41	39.73	39.77	39.89	39.27	39.32	39.43	39.38
18	39.41	---	39.41	39.25	39.42	39.74	39.75	39.88	39.25	39.32	39.43	39.37
19	39.39	---	39.42	39.25	39.42	39.71	39.74	39.86	39.23	39.31	39.41	39.37
20	39.39	---	39.43	39.25	39.43	39.67	39.71	39.87	39.22	39.32	39.43	39.35
21	39.42	---	39.47	39.24	39.43	39.65	39.69	39.87	39.27	39.31	39.44	39.38
22	39.41	---	39.43	39.23	39.43	39.67	39.75	39.85	39.26	39.33	39.41	39.37
23	39.40	---	39.40	39.23	39.45	39.69	39.76	39.59	39.26	39.36	39.41	39.33
24	39.38	---	39.40	39.25	39.49	39.72	39.74	39.46	39.26	39.35	39.43	39.34
25	39.37	---	39.42	39.25	39.49	39.70	39.72	39.47	39.27	39.37	39.45	39.35
26	39.36	---	39.44	39.25	39.50	39.70	39.77	39.42	39.27	39.37	39.49	39.34
27	39.37	39.37	39.44	39.26	39.53	39.73	39.81	39.41	39.27	39.40	39.52	39.35
28	39.39	39.38	39.42	39.26	39.55	39.76	39.80	39.41	39.27	39.40	39.49	39.36
29	39.38	39.38	39.42	39.25	39.56	39.77	39.78	39.41	39.29	39.40	39.47	39.36
30	39.38	39.40	39.44	39.24	---	39.78	39.79	39.44	39.30	39.41	39.43	39.32
31	39.40	---	39.45	39.25	---	39.76	---	39.40	---	39.40	39.43	---
MEAN	39.40	39.39	39.42	39.27	39.38	39.67	39.75	39.73	39.29	39.32	39.42	39.39

WTR YR 1992 MEAN 39.45 HIGHEST 39.08 JAN. 6, 1992 LOWEST 39.92 MAY 16, 1992





## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180627067080600. Local number, CR-TW-1.

LOCATION.--Lat 18°06'27", long 67°08'06", Hydrologic Unit 21010003, 1.48 mi north of Cabo Rojo plaza, 1.24 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.78 mi southwest of Escuela Sabana Alta.

Owner: U.S. Geological Survey, WRD, Name: CR-TW-1.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-15 ft (0-4.57 m), screened 5-15 ft (1.52-4.57 m). Depth 15 ft (4.57 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 28.6 ft (8.72 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 5.83 ft (1.78 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 3, 1992. Automatic digital recorder installed on July 16, 1992.

PERIOD OF RECORD.--July 1992 to September 1992.

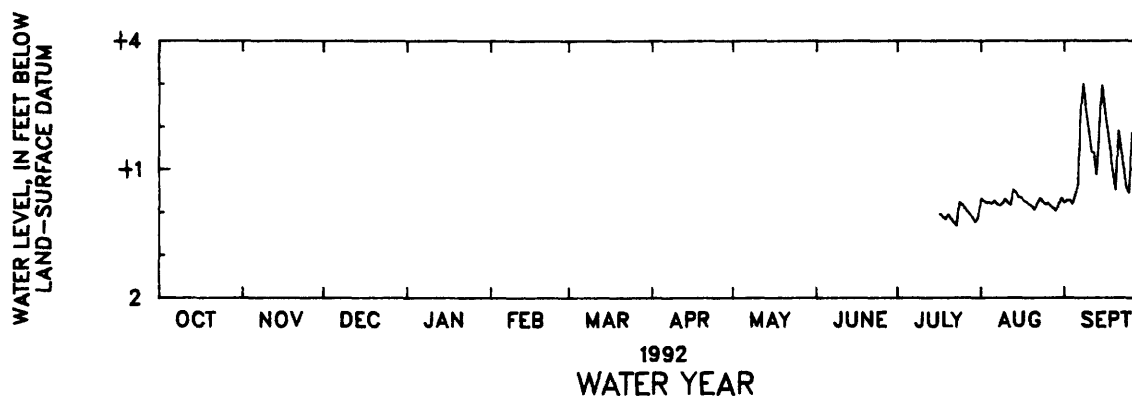
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +3.11 ft (+0.95m) above land-surface datum, Sept. 8, 1992; lowest water level recorded, 0.34 ft (0.10 m) below land-surface datum, July 23, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	+.32	+.22
2	---	---	---	---	---	---	---	---	---	---	+.27	+.28
3	---	---	---	---	---	---	---	---	---	---	+.22	+.28
4	---	---	---	---	---	---	---	---	---	---	+.23	+.19
5	---	---	---	---	---	---	---	---	---	---	+.20	+.40
6	---	---	---	---	---	---	---	---	---	---	+.27	+.63
7	---	---	---	---	---	---	---	---	---	---	+.19	+2.37
8	---	---	---	---	---	---	---	---	---	---	+.15	+3.01
9	---	---	---	---	---	---	---	---	---	---	+.21	+2.44
10	---	---	---	---	---	---	---	---	---	---	+.31	+1.92
11	---	---	---	---	---	---	---	---	---	---	+.22	+1.40
12	---	---	---	---	---	---	---	---	---	---	+.16	+1.38
13	---	---	---	---	---	---	---	---	---	---	+.53	+.87
14	---	---	---	---	---	---	---	---	---	---	+.46	+2.09
15	---	---	---	---	---	---	---	---	---	---	+.34	+2.97
16	---	---	---	---	---	---	---	---	---	---	+.34	+2.43
17	---	---	---	---	---	---	---	---	---	---	+.05	+1.89
18	---	---	---	---	---	---	---	---	---	---	+.12	+1.44
19	---	---	---	---	---	---	---	---	---	---	+.16	+.92
20	---	---	---	---	---	---	---	---	---	---	+.06	+.51
21	---	---	---	---	---	---	---	---	---	---	+.16	+1.91
22	---	---	---	---	---	---	---	---	---	---	+.25	+1.46
23	---	---	---	---	---	---	---	---	---	---	+.31	+1.05
24	---	---	---	---	---	---	---	---	---	---	+.24	+.56
25	---	---	---	---	---	---	---	---	---	---	+.18	+.44
26	---	---	---	---	---	---	---	---	---	---	+.10	+1.85
27	---	---	---	---	---	---	---	---	---	---	+.02	+1.43
28	---	---	---	---	---	---	---	---	---	---	+.05	+.90
29	---	---	---	---	---	---	---	---	---	---	+.13	+.80
30	---	---	---	---	---	---	---	---	---	---	+.24	+.71
31	---	---	---	---	---	---	---	---	---	---	+.14	---
MEAN	---	---	---	---	---	---	---	---	---	---	.08	+1.29

WTR YR 1992 MEAN +.59 HIGHEST +3.11 SEPT. 8, 1992 LOWEST .34 JULY 23, 1992

+ Above land-surface datum.



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180628067075800. Local number, CR-TW-2A.

LOCATION.--Lat 18°06'28", long 67°07'58", Hydrologic Unit 21010003, 1.56 mi northeast of Cabo Rojo plaza, 0.33 mi northwest of Hacienda La Ratina, and 1.94 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-2A.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-113 ft (0-34.4 m), screened 105-113 ft (32.0-34.4 m). Depth 113 ft (34.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 28.9 ft (8.81 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 6.10 ft (1.86 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 6, 1992. Automatic digital recorder installed on July 16, 1992.

PERIOD OF RECORD.--July 1992 to September 1992.

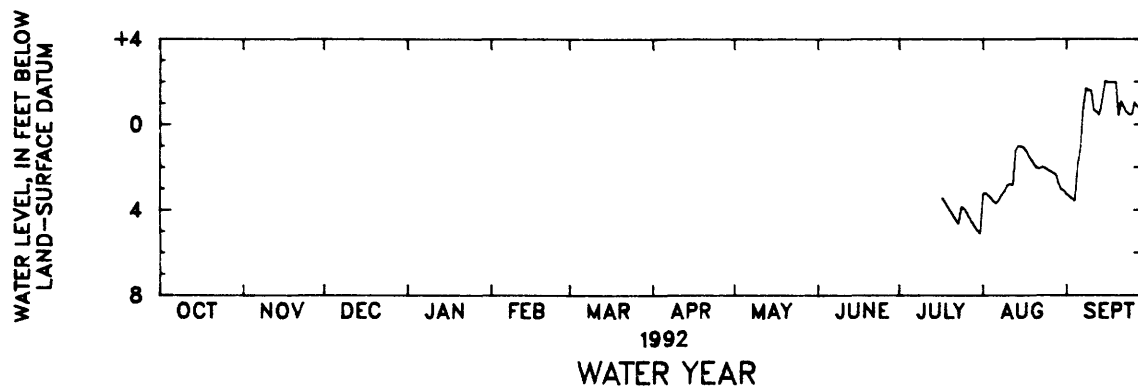
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +2.06 ft (+0.62 m) above land-surface datum, Sept. 15, 1992; lowest water level recorded, 5.12 ft (1.56 m) below land-surface datum, July 31, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	3.21	3.29
2	---	---	---	---	---	---	---	---	---	---	3.21	3.38
3	---	---	---	---	---	---	---	---	---	---	3.33	3.47
4	---	---	---	---	---	---	---	---	---	---	3.45	3.59
5	---	---	---	---	---	---	---	---	---	---	3.61	1.92
6	---	---	---	---	---	---	---	---	---	---	3.69	1.26
7	---	---	---	---	---	---	---	---	---	---	3.49	+0.76
8	---	---	---	---	---	---	---	---	---	---	3.26	+1.70
9	---	---	---	---	---	---	---	---	---	---	3.11	+1.60
10	---	---	---	---	---	---	---	---	---	---	2.83	+1.60
11	---	---	---	---	---	---	---	---	---	---	2.78	+0.64
12	---	---	---	---	---	---	---	---	---	---	2.82	+0.59
13	---	---	---	---	---	---	---	---	---	---	1.19	+0.43
14	---	---	---	---	---	---	---	---	---	---	.99	+1.11
15	---	---	---	---	---	---	---	---	---	---	1.03	+2.05
16	---	---	---	---	---	---	---	---	---	---	1.09	+1.98
17	---	---	---	---	---	---	---	---	---	3.46	1.26	+1.98
18	---	---	---	---	---	---	---	---	---	3.63	1.50	+1.98
19	---	---	---	---	---	---	---	---	---	3.85	1.69	+1.98
20	---	---	---	---	---	---	---	---	---	4.04	1.88	+0.39
21	---	---	---	---	---	---	---	---	---	4.25	2.04	+1.08
22	---	---	---	---	---	---	---	---	---	4.46	2.05	+0.82
23	---	---	---	---	---	---	---	---	---	4.66	1.99	+0.55
24	---	---	---	---	---	---	---	---	---	3.84	2.04	+0.45
25	---	---	---	---	---	---	---	---	---	3.93	2.13	+0.45
26	---	---	---	---	---	---	---	---	---	4.12	2.20	+1.04
27	---	---	---	---	---	---	---	---	---	4.36	2.28	+0.83
28	---	---	---	---	---	---	---	---	---	4.58	2.35	+0.71
29	---	---	---	---	---	---	---	---	---	4.78	2.81	+0.34
30	---	---	---	---	---	---	---	---	---	4.97	3.07	+0.25
31	---	---	---	---	---	---	---	---	---	5.11	3.10	---
MEAN	---	---	---	---	---	---	---	---	---	4.27	2.43	+0.28

WTR YR 1992 MEAN 1.73 HIGHEST +2.06 SEPT. 15, 1992 LOWEST 5.12 JULY 31, 1992

+ Above land-surface datum.



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180628067075801. Local number, CR-TW-2B.

LOCATION.--Lat 18°06'28", long 67°07'58", Hydrologic Unit 21010003, 1.56 mi northeast of Cabo Rojo plaza, 0.33 mi northwest of Hacienda La Ratina, and 1.94 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-2B.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-15 ft (0-4.57 m), screened 10-15 ft (3.05-4.57 m). Depth 15 ft (4.57 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 28.8 ft (8.78 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 6.10 ft (1.86 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 10, 1992. Automatic digital recorder installed on June 3, 1992.

PERIOD OF RECORD.--June 1992 to September 1992.

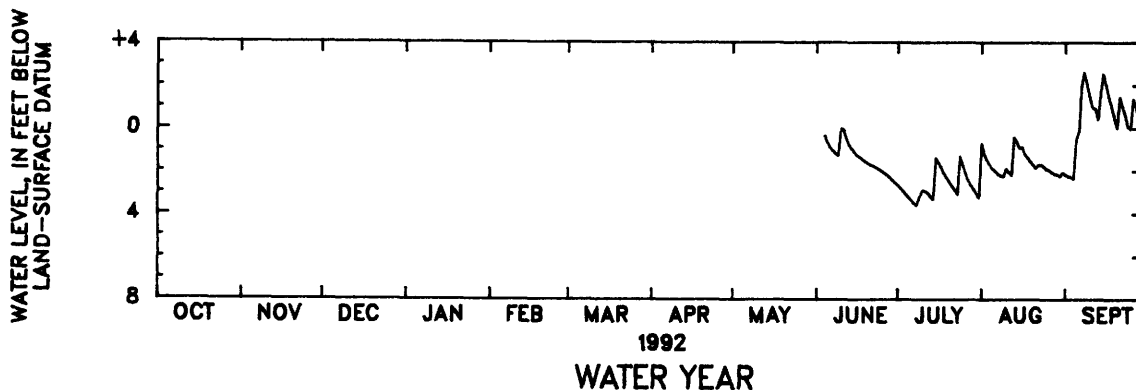
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +2.71 ft (+0.83 m) above land-surface datum, Sept. 8, 1992; lowest water level recorded, 3.60 ft (1.10 m) below land-surface datum, July 8, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	2.68	.68	2.18
2	---	---	---	---	---	---	---	---	---	2.81	1.22	2.24
3	---	---	---	---	---	---	---	---	---	2.96	1.48	2.28
4	---	---	---	---	---	---	---	---	.35	3.11	1.70	2.35
5	---	---	---	---	---	---	---	---	.69	3.23	1.90	.54
6	---	---	---	---	---	---	---	---	.89	3.36	2.00	.11
7	---	---	---	---	---	---	---	---	1.06	3.49	2.13	+1.97
8	---	---	---	---	---	---	---	---	1.18	3.60	2.22	+2.62
9	---	---	---	---	---	---	---	---	1.29	3.21	2.25	+2.03
10	---	---	---	---	---	---	---	---	+0.02	2.90	1.88	+1.47
11	---	---	---	---	---	---	---	---	.08	2.94	2.05	+0.96
12	---	---	---	---	---	---	---	---	.49	3.05	2.18	+0.93
13	---	---	---	---	---	---	---	---	.79	3.19	.39	+0.41
14	---	---	---	---	---	---	---	---	.98	3.32	.63	+1.65
15	---	---	---	---	---	---	---	---	1.13	1.37	.91	+2.55
16	---	---	---	---	---	---	---	---	1.29	1.60	.87	+2.02
17	---	---	---	---	---	---	---	---	1.38	1.80	1.21	+1.44
18	---	---	---	---	---	---	---	---	1.48	2.11	1.37	+0.99
19	---	---	---	---	---	---	---	---	1.57	2.31	1.54	+0.45
20	---	---	---	---	---	---	---	---	1.66	2.51	1.70	+0.01
21	---	---	---	---	---	---	---	---	1.73	2.71	1.85	+1.48
22	---	---	---	---	---	---	---	---	1.77	2.89	1.72	+1.01
23	---	---	---	---	---	---	---	---	1.84	3.08	1.68	+0.60
24	---	---	---	---	---	---	---	---	1.92	1.29	1.79	+0.06
25	---	---	---	---	---	---	---	---	2.01	1.73	1.91	.03
26	---	---	---	---	---	---	---	---	2.10	2.11	1.97	+1.38
27	---	---	---	---	---	---	---	---	2.19	2.43	2.06	+1.01
28	---	---	---	---	---	---	---	---	2.30	2.67	2.13	+0.44
29	---	---	---	---	---	---	---	---	2.44	2.87	2.17	+0.24
30	---	---	---	---	---	---	---	---	2.56	3.07	2.23	+0.14
31	---	---	---	---	---	---	---	---	---	3.23	2.06	---
MEAN	---	---	---	---	---	---	---	---	1.38	2.70	1.67	+0.54

WTR YR 1992 MEAN 1.32 HIGHEST +2.71 SEPT. 8, 1992 LOWEST 3.60 JULY 8, 1992

+ Above land-surface datum.



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180628067075802. Local number, CR-TW-2C.

LOCATION.--Lat 18°06'28", long 67°07'58", Hydrologic Unit 21010003, 1.56 mi northeast of Cabo Rojo plaza, 0.33 mi northwest of Hacienda La Ratina, and 1.94 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-2C.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-65 ft (0-19.8 m), screened 60-65 ft (18.3-19.8 m). Depth 65 ft (19.8 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 28.9 ft (8.81 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 6.06 ft (1.85 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 7, 1992. Automatic digital recorder installed on June 16, 1992.

PERIOD OF RECORD.--June 1992 to September 1992.

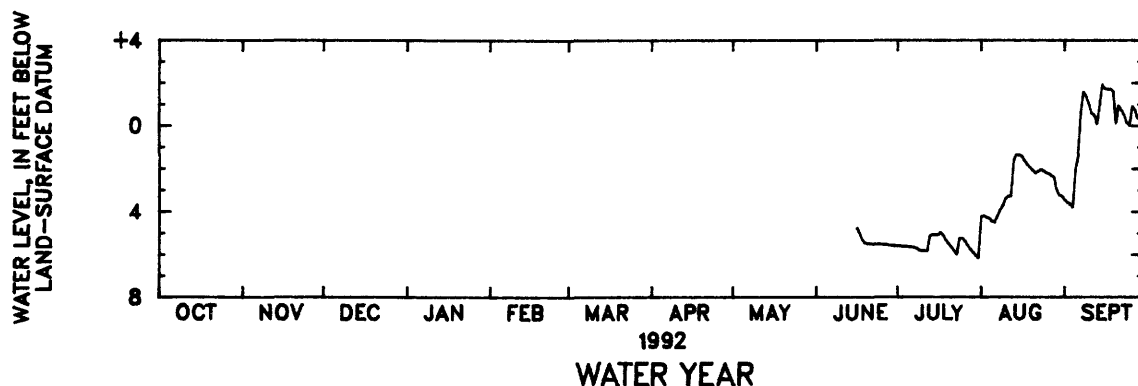
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +1.96 ft (+0.60 m) above land-surface datum, Sept. 15, 1992; lowest water level recorded, 6.16 ft (1.88 m) below land-surface datum, July 31, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	5.59	4.19	3.45
2	---	---	---	---	---	---	---	---	---	5.60	4.19	3.57
3	---	---	---	---	---	---	---	---	---	5.62	4.26	3.66
4	---	---	---	---	---	---	---	---	---	5.62	4.32	3.79
5	---	---	---	---	---	---	---	---	---	5.63	4.45	2.00
6	---	---	---	---	---	---	---	---	---	5.65	4.49	1.34
7	---	---	---	---	---	---	---	---	---	5.66	4.19	+0.67
8	---	---	---	---	---	---	---	---	---	5.70	3.89	+1.61
9	---	---	---	---	---	---	---	---	---	5.81	3.69	+1.37
10	---	---	---	---	---	---	---	---	---	5.82	3.37	+0.99
11	---	---	---	---	---	---	---	---	---	5.83	3.27	+0.56
12	---	---	---	---	---	---	---	---	---	5.84	3.27	+0.49
13	---	---	---	---	---	---	---	---	---	5.09	1.56	+0.06
14	---	---	---	---	---	---	---	---	---	5.06	1.32	+1.00
15	---	---	---	---	---	---	---	---	---	5.07	1.35	+1.95
16	---	---	---	---	---	---	---	---	4.76	5.07	1.42	+1.71
17	---	---	---	---	---	---	---	---	5.00	4.96	1.64	+1.71
18	---	---	---	---	---	---	---	---	5.33	5.11	1.81	+1.71
19	---	---	---	---	---	---	---	---	5.47	5.34	1.94	+1.60
20	---	---	---	---	---	---	---	---	5.48	5.51	2.07	+0.08
21	---	---	---	---	---	---	---	---	5.49	5.67	2.20	+0.96
22	---	---	---	---	---	---	---	---	5.50	5.84	2.13	+0.72
23	---	---	---	---	---	---	---	---	5.51	6.00	2.04	+0.50
24	---	---	---	---	---	---	---	---	5.51	5.21	2.10	+0.13
25	---	---	---	---	---	---	---	---	5.52	5.23	2.20	+0.02
26	---	---	---	---	---	---	---	---	5.53	5.37	2.23	+0.94
27	---	---	---	---	---	---	---	---	5.54	5.56	2.33	+0.75
28	---	---	---	---	---	---	---	---	5.56	5.76	2.40	+0.36
29	---	---	---	---	---	---	---	---	5.57	5.90	2.97	+0.33
30	---	---	---	---	---	---	---	---	5.58	6.07	3.23	+0.27
31	---	---	---	---	---	---	---	---	---	6.16	3.28	---
MEAN	---	---	---	---	---	---	---	---	5.42	5.56	2.83	+0.09

WTR YR 1992 MEAN 3.17 HIGHEST +1.96 SEPT. 15, 1992 LOWEST 6.16 JULY 31, 1992

+ Above land-surface datum.



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180643067080400. Local number, CR-TW-3.

LOCATION.--Lat 18°06'43", long 67°08'04", Hydrologic Unit 21010003, 1.75 mi northeast of Cabo Rojo plaza, 0.64 mi northwest of Hacienda La Ratina, and 1.58 mi southwest of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-3.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-30 ft (0-9.14 m), screened 20-30 ft (6.10-9.14 m). Depth 30 ft (9.14 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 27.2 ft (8.29 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 5.56 ft (1.69 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 12, 1992. Automatic digital recorder installed on July 10, 1992.

PERIOD OF RECORD.--March 1992 to September 1992.

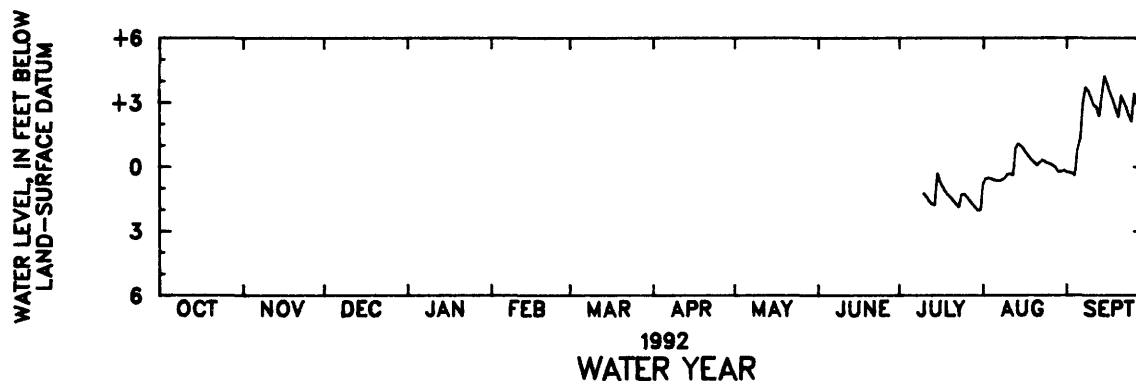
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +4.24 ft (+1.29 m) above land-surface datum, Sept. 15, 1992; lowest water level recorded, 2.03 ft (0.62 m) below land-surface datum, July 30-31, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	.76	.24
2	---	---	---	---	---	---	---	---	---	---	.53	.28
3	---	---	---	---	---	---	---	---	---	---	.52	.31
4	---	---	---	---	---	---	---	---	---	---	.56	.41
5	---	---	---	---	---	---	---	---	---	---	.61	+.86
6	---	---	---	---	---	---	---	---	---	---	.65	+1.31
7	---	---	---	---	---	---	---	---	---	---	.65	+3.01
8	---	---	---	---	---	---	---	---	---	---	.60	+3.73
9	---	---	---	---	---	---	---	---	---	---	.52	+3.53
10	---	---	---	---	---	---	---	---	---	1.25	.33	+3.23
11	---	---	---	---	---	---	---	---	---	1.39	.33	+2.85
12	---	---	---	---	---	---	---	---	---	1.58	.39	+2.81
13	---	---	---	---	---	---	---	---	---	1.73	+.91	+2.35
14	---	---	---	---	---	---	---	---	---	1.78	+1.09	+3.37
15	---	---	---	---	---	---	---	---	---	.29	+.97	+4.24
16	---	---	---	---	---	---	---	---	---	.70	+.83	+3.86
17	---	---	---	---	---	---	---	---	---	.94	+.62	+3.45
18	---	---	---	---	---	---	---	---	---	1.16	+.46	+3.13
19	---	---	---	---	---	---	---	---	---	1.31	+.30	+2.72
20	---	---	---	---	---	---	---	---	---	1.43	+.19	+2.32
21	---	---	---	---	---	---	---	---	---	1.58	+.07	+3.36
22	---	---	---	---	---	---	---	---	---	1.73	+.22	+3.04
23	---	---	---	---	---	---	---	---	---	1.87	+.31	+2.79
24	---	---	---	---	---	---	---	---	---	1.27	+.24	+2.39
25	---	---	---	---	---	---	---	---	---	1.26	+.16	+2.13
26	---	---	---	---	---	---	---	---	---	1.40	+.12	+3.43
27	---	---	---	---	---	---	---	---	---	1.57	+.05	+3.13
28	---	---	---	---	---	---	---	---	---	1.73	.03	+2.70
29	---	---	---	---	---	---	---	---	---	1.87	.25	+2.66
30	---	---	---	---	---	---	---	---	---	2.02	.22	+2.59
31	---	---	---	---	---	---	---	---	---	2.01	.17	---
MEAN	---	---	---	---	---	---	---	---	---	1.45	.02	+2.46

WTR YR 1992 MEAN +.50 HIGHEST +4.24 SEPT. 15, 1992 LOWEST 2.03 JULY 30-31, 1992

+ Above land-surface datum.



GROUND-WATER LEVELS  
RIO GUANAJIBO BASIN

180650067073700. Local number, CR-TW-4.

LOCATION.--Lat 18°06'50", long 67°07'37", Hydrologic Unit 21010003, 2.15 mi northeast of Cabo Rojo plaza, 0.68 mi northeast of Hacienda La Ratina, and 2.13 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-4.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-28 ft (0-8.53 m), screened 15-25 ft (4.57-7.62 m). Depth 28 ft (8.53 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 37.2 ft (11.3 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.96 ft (1.21 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 13, 1992. Automatic digital recorder installed on June 30, 1992.

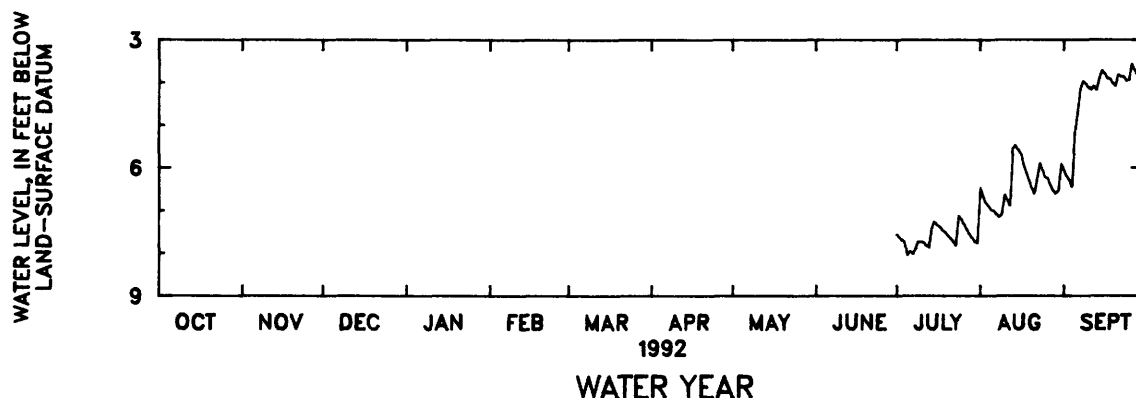
PERIOD OF RECORD.--June 1992 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.55 ft (1.08 m) below land-surface datum, Sept. 26, 1992; lowest water level recorded, 8.05 ft (2.45 m) below land-surface datum, July 5, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	7.56	6.46	6.07
2	---	---	---	---	---	---	---	---	---	7.63	6.67	6.21
3	---	---	---	---	---	---	---	---	---	7.69	6.83	6.29
4	---	---	---	---	---	---	---	---	---	7.74	6.90	6.46
5	---	---	---	---	---	---	---	---	---	8.05	6.99	5.19
6	---	---	---	---	---	---	---	---	---	7.95	7.01	4.75
7	---	---	---	---	---	---	---	---	---	8.01	7.09	4.17
8	---	---	---	---	---	---	---	---	---	7.88	7.15	3.97
9	---	---	---	---	---	---	---	---	---	7.73	7.09	4.03
10	---	---	---	---	---	---	---	---	---	7.73	6.62	4.12
11	---	---	---	---	---	---	---	---	---	7.75	6.76	4.17
12	---	---	---	---	---	---	---	---	---	7.82	6.90	4.09
13	---	---	---	---	---	---	---	---	---	7.86	5.53	4.18
14	---	---	---	---	---	---	---	---	---	7.41	5.47	3.90
15	---	---	---	---	---	---	---	---	---	7.25	5.57	3.72
16	---	---	---	---	---	---	---	---	---	7.34	5.67	3.80
17	---	---	---	---	---	---	---	---	---	7.38	5.95	3.91
18	---	---	---	---	---	---	---	---	---	7.46	6.12	3.92
19	---	---	---	---	---	---	---	---	---	7.51	6.30	4.03
20	---	---	---	---	---	---	---	---	---	7.59	6.49	4.09
21	---	---	---	---	---	---	---	---	---	7.65	6.62	3.81
22	---	---	---	---	---	---	---	---	---	7.73	6.25	3.87
23	---	---	---	---	---	---	---	---	---	7.82	5.89	3.87
24	---	---	---	---	---	---	---	---	---	7.11	6.07	3.96
25	---	---	---	---	---	---	---	---	---	7.20	6.24	3.95
26	---	---	---	---	---	---	---	---	---	7.32	6.24	3.56
27	---	---	---	---	---	---	---	---	---	7.44	6.41	3.71
28	---	---	---	---	---	---	---	---	---	7.55	6.54	3.82
29	---	---	---	---	---	---	---	---	---	7.64	6.61	3.73
30	---	---	---	---	---	---	---	---	---	7.73	6.53	3.72
31	---	---	---	---	---	---	---	---	---	7.76	5.90	---
MEAN	---	---	---	---	---	---	---	---	---	7.62	6.42	4.30

WTR YR 1992 MEAN 6.13 HIGHEST 3.55 SEPT. 26, 1992 LOWEST 8.05 JULY 5, 1992



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180557067083100. Local number, CR-TW-5.

LOCATION.--Lat 18°05'57", long 67°08'31", Hydrologic Unit 21010003, 0.75 mi northeast of Cabo Rojo plaza, 0.92 mi southeast of Hacienda La Ratina, and 1.83 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-5.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-25 ft (0-7.62 m), screened 15-25 ft (4.57-7.62 m). Depth 25 ft (7.62 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 35.3 ft (10.8 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.88 ft (1.18 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 17, 1992. Automatic digital recorder installed on July 16, 1992.

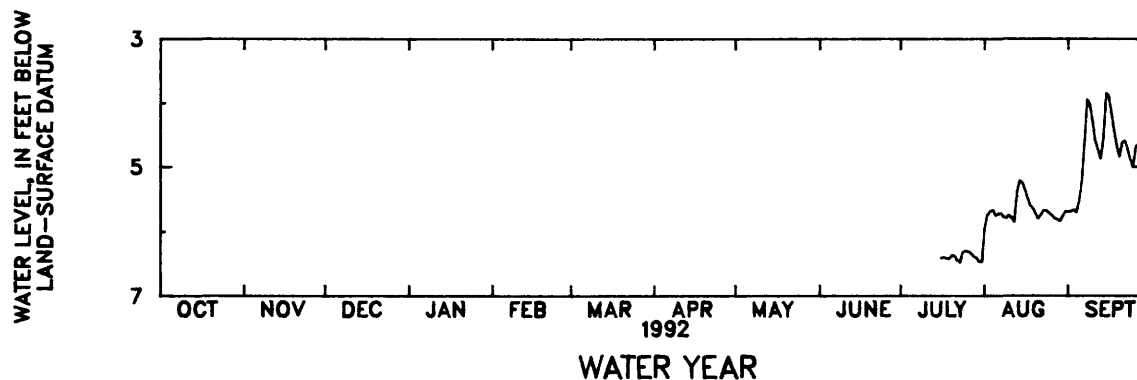
PERIOD OF RECORD.--July 1992 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.78 ft (1.15 m) below land-surface datum, Sept. 15, 1992; lowest water level recorded, 6.50 ft (1.98 m) below land-surface datum, July 23, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	5.94	5.69
2	---	---	---	---	---	---	---	---	---	---	5.74	5.69
3	---	---	---	---	---	---	---	---	---	---	5.69	5.67
4	---	---	---	---	---	---	---	---	---	---	5.67	5.70
5	---	---	---	---	---	---	---	---	---	---	5.75	5.54
6	---	---	---	---	---	---	---	---	---	---	5.73	5.23
7	---	---	---	---	---	---	---	---	---	---	5.72	4.60
8	---	---	---	---	---	---	---	---	---	---	5.78	3.94
9	---	---	---	---	---	---	---	---	---	---	5.79	4.02
10	---	---	---	---	---	---	---	---	---	---	5.75	4.28
11	---	---	---	---	---	---	---	---	---	---	5.79	4.60
12	---	---	---	---	---	---	---	---	---	---	5.85	4.73
13	---	---	---	---	---	---	---	---	---	---	5.38	4.88
14	---	---	---	---	---	---	---	---	---	---	5.21	4.52
15	---	---	---	---	---	---	---	---	---	---	5.25	3.84
16	---	---	---	---	---	---	---	---	---	6.41	5.37	3.89
17	---	---	---	---	---	---	---	---	---	6.40	5.50	4.16
18	---	---	---	---	---	---	---	---	---	6.42	5.61	4.45
19	---	---	---	---	---	---	---	---	---	6.42	5.65	4.68
20	---	---	---	---	---	---	---	---	---	6.37	5.73	4.85
21	---	---	---	---	---	---	---	---	---	6.38	5.81	4.61
22	---	---	---	---	---	---	---	---	---	6.45	5.74	4.59
23	---	---	---	---	---	---	---	---	---	6.48	5.67	4.73
24	---	---	---	---	---	---	---	---	---	6.32	5.68	4.89
25	---	---	---	---	---	---	---	---	---	6.30	5.72	5.01
26	---	---	---	---	---	---	---	---	---	6.31	5.75	4.67
27	---	---	---	---	---	---	---	---	---	6.34	5.80	4.65
28	---	---	---	---	---	---	---	---	---	6.39	5.82	4.81
29	---	---	---	---	---	---	---	---	---	6.41	5.84	4.87
30	---	---	---	---	---	---	---	---	---	6.47	5.76	4.86
31	---	---	---	---	---	---	---	---	---	6.47	5.69	---
MEAN	---	---	---	---	---	---	---	---	---	6.40	5.68	4.75

WTR YR 1992 MEAN 5.47 HIGHEST 3.78 SEPT. 15, 1992 LOWEST 6.50 JULY 23, 1992



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180617067083300. Local number, CR-TW-6.

LOCATION.--Lat 18°06'17", long 67°08'33", Hydrologic Unit 21010003, 1.11 mi northeast of Cabo Rojo plaza, 1.27 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.50 southeast of Escuela Sabana Alta.  
 Owner: U.S. Geological Survey, WRD, Name: CR-TW-6.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-30 ft (0-9.14 m), screened 20-30 ft (6.10-10.0 m). Depth 30 ft (10.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 32.9 ft (10.0 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 5.77 ft (1.76 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 19, 1992. Automatic digital recorder installed on June 4, 1992.

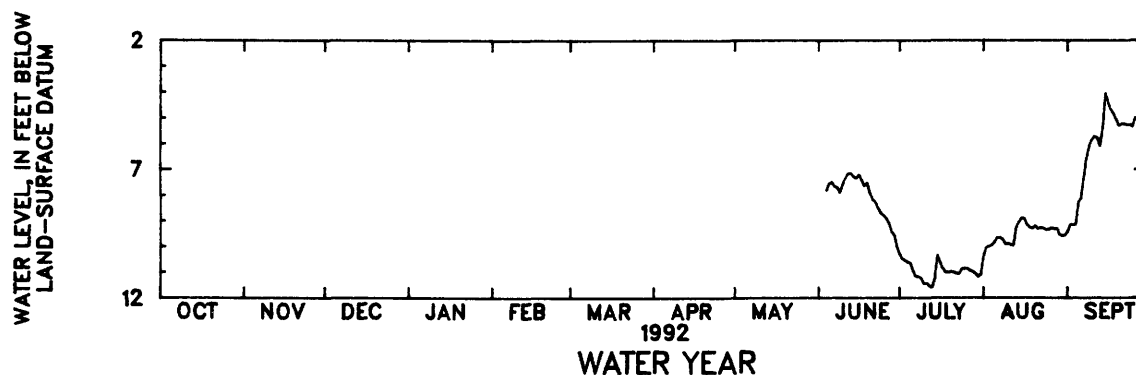
PERIOD OF RECORD.--June 1992 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.00 ft (1.22 m) below land-surface datum, Sept. 15, 1992; lowest water level recorded, 11.6 ft (3.54 m) below land-surface datum, July 13, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
 INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	10.32	10.38	9.43
2	---	---	---	---	---	---	---	---	---	10.51	10.04	9.14
3	---	---	---	---	---	---	---	---	---	10.55	10.00	9.15
4	---	---	---	---	---	---	---	---	7.80	10.63	9.94	9.13
5	---	---	---	---	---	---	---	---	7.53	10.66	9.83	8.23
6	---	---	---	---	---	---	---	---	7.48	10.98	9.66	8.11
7	---	---	---	---	---	---	---	---	7.66	11.16	9.66	7.38
8	---	---	---	---	---	---	---	---	7.70	11.18	9.72	6.57
9	---	---	---	---	---	---	---	---	7.90	11.23	9.91	6.06
10	---	---	---	---	---	---	---	---	7.53	11.44	9.90	5.83
11	---	---	---	---	---	---	---	---	7.31	11.43	9.94	5.71
12	---	---	---	---	---	---	---	---	7.14	11.52	9.96	5.77
13	---	---	---	---	---	---	---	---	7.15	11.59	9.24	6.08
14	---	---	---	---	---	---	---	---	7.29	11.25	9.04	5.38
15	---	---	---	---	---	---	---	---	7.34	10.33	8.89	4.03
16	---	---	---	---	---	---	---	---	7.20	10.65	8.92	4.44
17	---	---	---	---	---	---	---	---	7.42	10.88	9.16	4.70
18	---	---	---	---	---	---	---	---	7.65	11.01	9.26	4.83
19	---	---	---	---	---	---	---	---	7.52	11.01	9.29	5.06
20	---	---	---	---	---	---	---	---	7.91	10.99	9.20	5.31
21	---	---	---	---	---	---	---	---	8.20	11.01	9.31	5.23
22	---	---	---	---	---	---	---	---	8.28	11.05	9.26	5.23
23	---	---	---	---	---	---	---	---	8.53	11.07	9.30	5.27
24	---	---	---	---	---	---	---	---	8.71	10.87	9.35	5.26
25	---	---	---	---	---	---	---	---	8.80	10.86	9.34	5.34
26	---	---	---	---	---	---	---	---	8.92	10.86	9.28	4.98
27	---	---	---	---	---	---	---	---	9.10	10.94	9.31	5.07
28	---	---	---	---	---	---	---	---	9.45	10.99	9.30	5.28
29	---	---	---	---	---	---	---	---	9.57	11.06	9.55	5.22
30	---	---	---	---	---	---	---	---	10.04	11.17	9.59	5.04
31	---	---	---	---	---	---	---	---	---	11.09	9.56	---
MEAN	---	---	---	---	---	---	---	---	8.04	10.98	9.52	6.08

WTR YR 1992 MEAN 8.70 HIGHEST 4.00 SEPT. 15, 1992 LOWEST 11.60 JULY 13, 1992





## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180604067085100. Local number, CR-TW-7.

LOCATION.--Lat 18°06'04", long 67°08'51", Hydrologic Unit 21010003, 0.80 mi northwest of Cabo Rojo plaza, 1.29 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.56 southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-7.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-40 ft (0-12.2 m), screened 30-40 ft (9.14-12.2 m). Depth 40 ft (12.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 42.2 ft (12.9 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 5.69 ft (1.73 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 19, 1992. Automatic digital recorder installed on June 4, 1992.

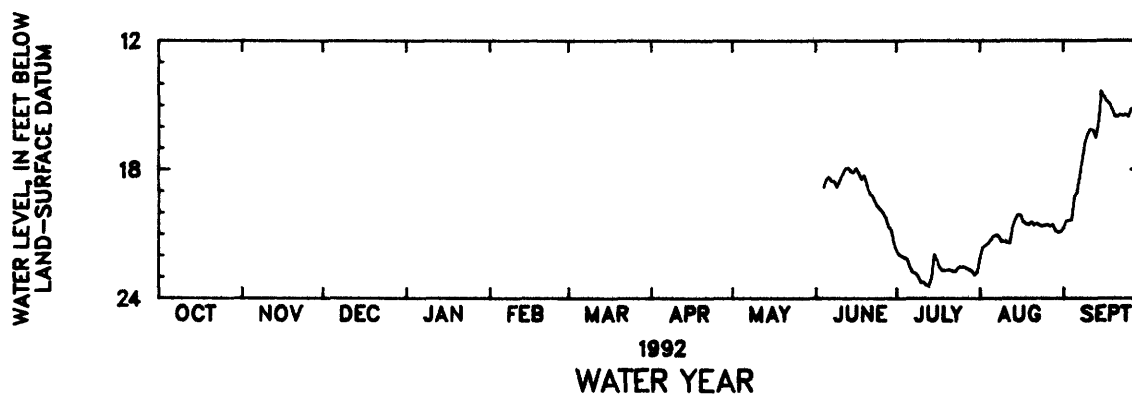
PERIOD OF RECORD.--June 1992 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 14.2 ft (4.32 m) below land-surface datum, Sept. 15, 1992; lowest water level recorded, 23.4 ft (7.15 m) below land-surface datum, July 13, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	21.76	22.10	20.71
2	---	---	---	---	---	---	---	---	---	21.97	21.60	20.37
3	---	---	---	---	---	---	---	---	---	22.03	21.52	20.36
4	---	---	---	---	---	---	---	---	18.79	22.11	21.42	20.32
5	---	---	---	---	---	---	---	---	18.44	22.16	21.25	19.21
6	---	---	---	---	---	---	---	---	18.35	22.56	21.07	19.09
7	---	---	---	---	---	---	---	---	18.55	22.80	21.03	18.40
8	---	---	---	---	---	---	---	---	18.57	22.82	21.11	17.56
9	---	---	---	---	---	---	---	---	18.83	22.97	21.34	16.72
10	---	---	---	---	---	---	---	---	18.46	23.26	21.35	16.31
11	---	---	---	---	---	---	---	---	18.19	23.24	21.38	16.10
12	---	---	---	---	---	---	---	---	17.95	23.37	21.41	16.16
13	---	---	---	---	---	---	---	---	17.92	23.43	20.67	16.51
14	---	---	---	---	---	---	---	---	18.10	23.04	20.31	15.75
15	---	---	---	---	---	---	---	---	18.14	21.92	20.08	14.32
16	---	---	---	---	---	---	---	---	17.93	22.24	20.11	14.60
17	---	---	---	---	---	---	---	---	18.20	22.56	20.42	14.82
18	---	---	---	---	---	---	---	---	18.45	22.70	20.52	14.93
19	---	---	---	---	---	---	---	---	18.27	22.69	20.55	15.19
20	---	---	---	---	---	---	---	---	18.70	22.67	20.43	15.51
21	---	---	---	---	---	---	---	---	19.15	22.69	20.56	15.52
22	---	---	---	---	---	---	---	---	19.22	22.74	20.49	15.43
23	---	---	---	---	---	---	---	---	19.52	22.75	20.57	15.48
24	---	---	---	---	---	---	---	---	19.74	22.55	20.62	15.42
25	---	---	---	---	---	---	---	---	19.86	22.54	20.59	15.52
26	---	---	---	---	---	---	---	---	20.01	22.52	20.55	15.17
27	---	---	---	---	---	---	---	---	20.23	22.61	20.61	15.20
28	---	---	---	---	---	---	---	---	20.67	22.67	20.56	15.43
29	---	---	---	---	---	---	---	---	20.79	22.75	20.86	15.39
30	---	---	---	---	---	---	---	---	21.41	22.90	20.91	15.15
31	---	---	---	---	---	---	---	---	---	22.78	20.88	---
MEAN	---	---	---	---	---	---	---	---	18.98	22.64	20.87	16.55

WTR YR 1992 MEAN 19.81 HIGHEST 14.19 SEPT. 15, 1992 LOWEST 23.45 JULY 13, 1992



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180547067084800. Local number, CR-TW-8.

LOCATION.--Lat 18°05'47", long 67°08'48", Hydrologic Unit 21010003, 0.50 mi north of Cabo Rojo plaza, 1.10 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.85 southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-8.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-39 ft (0-11.7 m), screened 25-35 ft (7.62-10.7 m). Depth 39 ft (11.9 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 40.7 ft (12.4 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.94 ft (1.20 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 25, 1992. Automatic digital recorder installed on July 16, 1992.

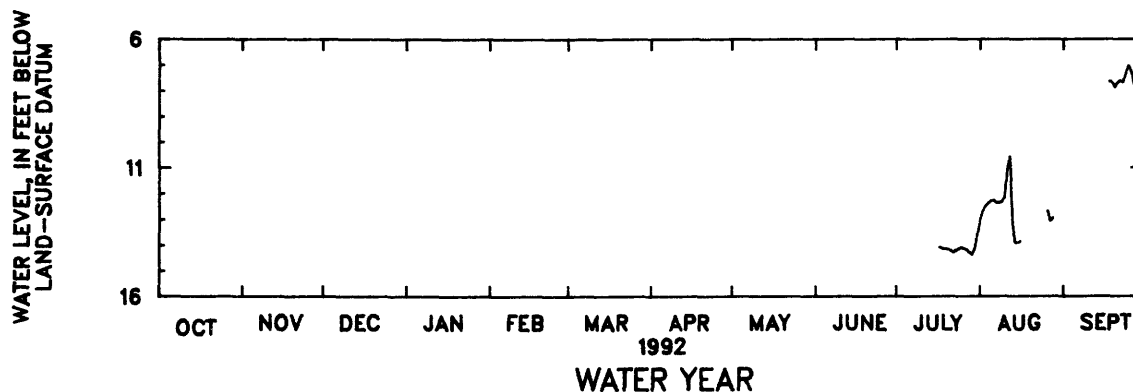
PERIOD OF RECORD.--July 1992 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.02 ft (2.14 m) below land-surface datum, Sept. 25, 1992; lowest water level recorded, 14.4 ft (4.38 m) below land-surface datum, July 29, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	12.97	---
2	---	---	---	---	---	---	---	---	---	---	12.67	---
3	---	---	---	---	---	---	---	---	---	---	12.48	---
4	---	---	---	---	---	---	---	---	---	---	12.37	---
5	---	---	---	---	---	---	---	---	---	---	12.29	---
6	---	---	---	---	---	---	---	---	---	---	12.27	---
7	---	---	---	---	---	---	---	---	---	---	12.36	---
8	---	---	---	---	---	---	---	---	---	---	12.36	---
9	---	---	---	---	---	---	---	---	---	---	12.33	---
10	---	---	---	---	---	---	---	---	---	---	12.16	---
11	---	---	---	---	---	---	---	---	---	---	11.02	---
12	---	---	---	---	---	---	---	---	---	---	10.55	---
13	---	---	---	---	---	---	---	---	---	---	13.28	---
14	---	---	---	---	---	---	---	---	---	---	13.92	---
15	---	---	---	---	---	---	---	---	---	---	13.91	---
16	---	---	---	---	---	---	---	---	---	---	13.87	---
17	---	---	---	---	---	---	---	---	---	14.08	---	---
18	---	---	---	---	---	---	---	---	---	14.13	---	7.64
19	---	---	---	---	---	---	---	---	---	14.14	---	7.68
20	---	---	---	---	---	---	---	---	---	14.16	---	7.86
21	---	---	---	---	---	---	---	---	---	14.21	---	7.69
22	---	---	---	---	---	---	---	---	---	14.28	---	7.61
23	---	---	---	---	---	---	---	---	---	14.20	---	7.68
24	---	---	---	---	---	---	---	---	---	14.14	---	7.30
25	---	---	---	---	---	---	---	---	---	14.09	---	7.02
26	---	---	---	---	---	---	---	---	---	14.13	12.70	7.29
27	---	---	---	---	---	---	---	---	---	14.19	13.08	7.72
28	---	---	---	---	---	---	---	---	---	14.29	12.96	8.11
29	---	---	---	---	---	---	---	---	---	14.37	---	8.36
30	---	---	---	---	---	---	---	---	---	14.13	---	8.33
31	---	---	---	---	---	---	---	---	---	13.55	---	---
MEAN	---	---	---	---	---	---	---	---	---	14.14	12.61	7.71

WTR YR 1992 MEAN 11.74 HIGHEST 7.02 SEPT. 25, 1992 LOWEST 14.38 JULY 29, 1992



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180628067084300. Local number, CR-TW-9A.

LOCATION.--Lat 18°06'28", long 67°08'43", Hydrologic Unit 21010003, 1.29 mi north of Cabo Rojo plaza, 1.54 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.23 southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-9A.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-24 ft (0-7.32 m), screened 19-24 ft (5.79-7.32 m). Depth 24 ft (7.32 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 29.5 ft (8.99 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.92 ft (1.20 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 25, 1992. Automatic digital recorder installed on July 8, 1992.

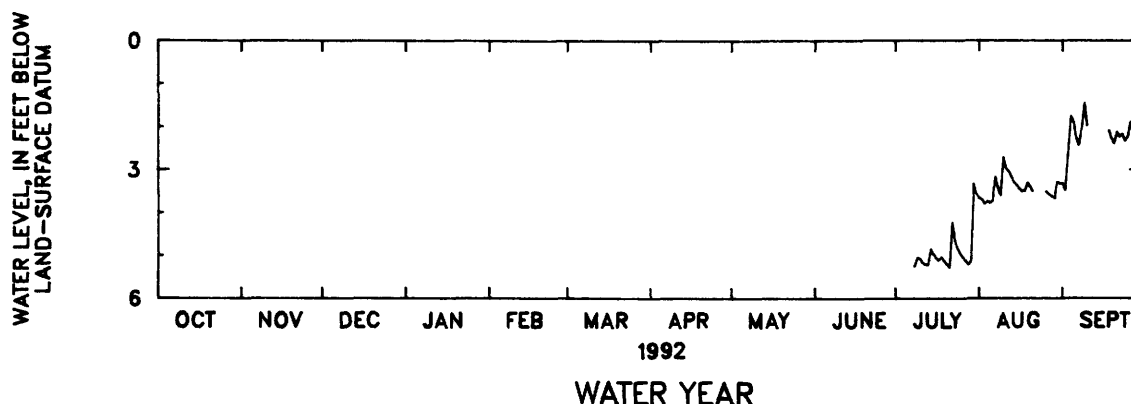
PERIOD OF RECORD.--July 1992 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.36 ft (0.41 m) below land-surface datum, Sept. 9, 1992; lowest water level recorded, 5.28 ft (1.61 m) below land-surface datum, July 21-22, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	3.68	3.32
2	---	---	---	---	---	---	---	---	---	---	3.70	3.48
3	---	---	---	---	---	---	---	---	---	---	3.80	2.63
4	---	---	---	---	---	---	---	---	---	---	3.74	1.74
5	---	---	---	---	---	---	---	---	---	---	3.78	1.90
6	---	---	---	---	---	---	---	---	---	---	3.73	2.28
7	---	---	---	---	---	---	---	---	---	---	3.16	2.45
8	---	---	---	---	---	---	---	---	---	5.24	3.44	2.05
9	---	---	---	---	---	---	---	---	---	5.05	3.62	1.44
10	---	---	---	---	---	---	---	---	---	5.07	2.71	1.98
11	---	---	---	---	---	---	---	---	---	5.17	2.99	---
12	---	---	---	---	---	---	---	---	---	5.21	3.04	---
13	---	---	---	---	---	---	---	---	---	5.22	3.17	---
14	---	---	---	---	---	---	---	---	---	4.84	3.31	---
15	---	---	---	---	---	---	---	---	---	4.97	3.37	---
16	---	---	---	---	---	---	---	---	---	5.06	3.45	---
17	---	---	---	---	---	---	---	---	---	5.12	3.51	---
18	---	---	---	---	---	---	---	---	---	5.03	3.49	2.10
19	---	---	---	---	---	---	---	---	---	5.13	3.30	2.28
20	---	---	---	---	---	---	---	---	---	5.21	3.40	2.40
21	---	---	---	---	---	---	---	---	---	5.28	3.50	2.12
22	---	---	---	---	---	---	---	---	---	4.21	---	2.24
23	---	---	---	---	---	---	---	---	---	4.66	---	2.18
24	---	---	---	---	---	---	---	---	---	4.85	---	2.33
25	---	---	---	---	---	---	---	---	---	4.97	---	2.24
26	---	---	---	---	---	---	---	---	---	5.05	3.52	1.88
27	---	---	---	---	---	---	---	---	---	5.13	3.59	2.09
28	---	---	---	---	---	---	---	---	---	5.22	3.63	2.25
29	---	---	---	---	---	---	---	---	---	5.13	3.67	2.17
30	---	---	---	---	---	---	---	---	---	3.32	3.28	2.19
31	---	---	---	---	---	---	---	---	---	3.58	3.33	---
MEAN	---	---	---	---	---	---	---	---	---	4.90	3.44	2.25

WTR YR 1992 MEAN 3.55 HIGHEST 1.36 SEPT. 9, 1992 LOWEST 5.28 JULY 21-22, 1992



## GROUND-WATER LEVELS

## RIO GUANAJIBO BASIN

180547067073100. Local number, CR-TW-10.

LOCATION.--Lat 18°05'47", long 67°07'31", Hydrologic Unit 21010003, 1.46 mi northeast of Cabo Rojo plaza, 0.60 mi northeast of Escuela Segunda Unidad Antonio Acarón Correa, and 2.74 southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-10.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-40 ft (0-12.2 m), screened 30-40 ft (9.14-12.2 m). Depth 40 ft (12.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 36.4 ft (11.1 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.67 ft (1.12 m) above land-surface datum.

REMARKS.--Observation well. Drilled on May 21, 1992. Automatic digital recorder installed on July 6, 1992.

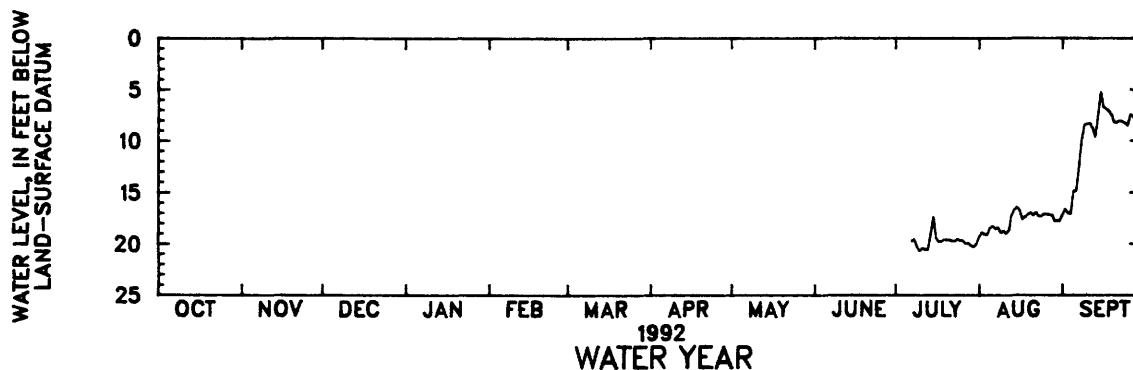
PERIOD OF RECORD.--July 1992 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.17 ft (1.58 m) below land-surface datum, Sept. 15, 1992; lowest water level recorded, 21.0 ft (6.39 m) below land-surface datum, July 13, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	19.31	17.18
2	---	---	---	---	---	---	---	---	---	---	18.91	16.62
3	---	---	---	---	---	---	---	---	---	---	19.09	17.01
4	---	---	---	---	---	---	---	---	---	---	19.14	17.07
5	---	---	---	---	---	---	---	---	---	---	18.43	14.83
6	---	---	---	---	---	---	---	---	---	---	18.24	14.87
7	---	---	---	---	---	---	---	---	---	19.72	18.53	12.42
8	---	---	---	---	---	---	---	---	---	19.56	18.40	9.84
9	---	---	---	---	---	---	---	---	---	20.31	18.94	8.37
10	---	---	---	---	---	---	---	---	---	20.75	18.77	8.35
11	---	---	---	---	---	---	---	---	---	20.44	19.01	8.29
12	---	---	---	---	---	---	---	---	---	20.56	18.68	8.77
13	---	---	---	---	---	---	---	---	---	20.56	17.17	9.64
14	---	---	---	---	---	---	---	---	---	18.97	16.67	7.45
15	---	---	---	---	---	---	---	---	---	17.37	16.43	5.21
16	---	---	---	---	---	---	---	---	---	19.50	16.78	6.76
17	---	---	---	---	---	---	---	---	---	19.83	17.65	6.88
18	---	---	---	---	---	---	---	---	---	19.81	17.37	7.11
19	---	---	---	---	---	---	---	---	---	19.59	17.14	7.47
20	---	---	---	---	---	---	---	---	---	19.63	16.98	8.21
21	---	---	---	---	---	---	---	---	---	19.63	17.21	8.21
22	---	---	---	---	---	---	---	---	---	19.74	16.96	8.02
23	---	---	---	---	---	---	---	---	---	19.74	17.30	8.15
24	---	---	---	---	---	---	---	---	---	19.56	17.34	8.28
25	---	---	---	---	---	---	---	---	---	19.71	17.12	8.50
26	---	---	---	---	---	---	---	---	---	19.72	17.11	7.38
27	---	---	---	---	---	---	---	---	---	20.01	17.20	7.58
28	---	---	---	---	---	---	---	---	---	19.96	17.23	8.27
29	---	---	---	---	---	---	---	---	---	20.18	17.79	7.63
30	---	---	---	---	---	---	---	---	---	20.29	17.78	7.31
31	---	---	---	---	---	---	---	---	---	20.02	17.75	---
MEAN	---	---	---	---	---	---	---	---	---	19.81	17.82	9.72

WTR YR 1992 MEAN 15.57 HIGHEST 5.17 SEPT. 15, 1992 LOWEST 21.0 JULY 13, 1992



## GROUND-WATER LEVELS

## RIO CULEBRINAS BASIN

182442067091700. Local number, 200.

LOCATION.--Lat 18°24'42", long 67°09'17", Hydrologic Unit 21010002, 1.40 mi south of Aguadilla plaza, 3.04 mi northeast of Aguada plaza, and 0.20 mi north of Hwy 2 km 146.4. Owner: Carmelo Sánchez, Name: Aguadilla Cement Well.

AQUIFER.--Surficial deposits.

WELL CHARACTERISTICS.--Abandoned water-table industrial well, diameter 4 in (0.10 m), cased 0-20 ft (0-6.10 m), perforated 11-20 ft (3.35-6.10 m). Depth 20 ft (6.10 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 10 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.25 ft (0.99 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

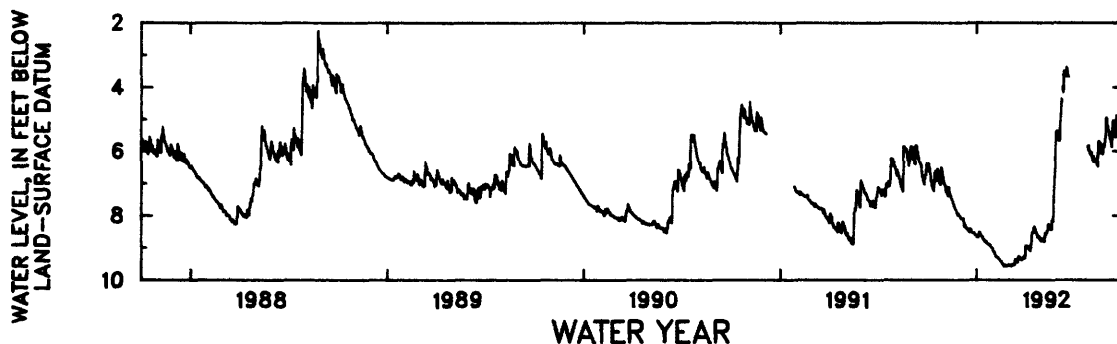
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.24 ft (0.68 m) below land-surface datum, Aug 25, 1988; lowest water level recorded, 9.60 ft (2.93 m) below land-surface datum, Feb. 20, 1992.

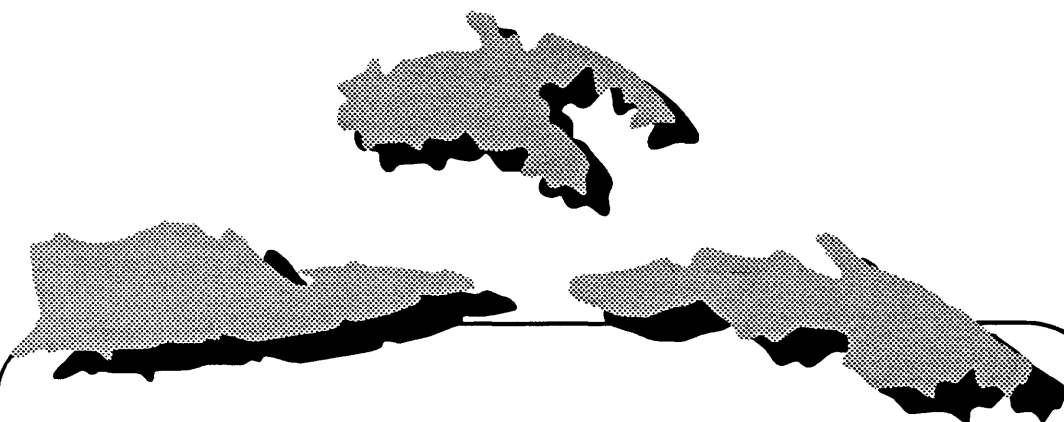
WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.55	7.00	8.03	8.63	9.13	9.53	8.94	8.80	5.67	---	6.03	5.24
2	6.60	7.05	8.08	8.68	9.14	9.56	8.96	8.72	5.66	---	6.19	5.38
3	6.38	7.09	8.10	8.68	9.19	9.57	8.97	8.73	5.68	---	6.24	5.48
4	6.52	7.26	8.10	8.68	9.22	9.56	8.96	8.77	5.07	---	6.33	5.56
5	6.58	7.20	8.11	8.59	9.28	9.56	8.96	8.78	4.88	---	6.16	5.60
6	6.69	7.26	8.11	8.51	9.29	9.56	9.02	8.81	4.37	---	6.27	5.68
7	6.90	7.31	8.11	8.54	9.29	9.54	9.05	8.55	---	---	6.27	5.73
8	6.96	7.39	8.10	8.54	9.30	9.53	9.08	8.58	4.01	---	6.34	5.86
9	7.08	7.10	8.35	8.62	9.31	9.52	9.11	8.58	4.18	---	6.28	5.30
10	7.06	7.13	8.27	8.64	9.34	9.53	9.00	8.52	3.64	---	6.35	5.03
11	7.16	7.27	8.33	8.65	9.37	9.53	8.96	8.48	3.48	---	6.42	5.15
12	7.20	7.36	8.35	8.67	9.38	9.36	8.76	8.44	3.56	---	6.47	5.25
13	7.23	7.40	8.38	8.73	9.40	9.39	8.51	8.26	3.57	---	6.13	5.35
14	6.65	7.44	8.40	8.74	9.42	9.39	8.53	8.28	3.66	---	5.67	5.44
15	6.70	7.49	8.41	8.77	9.43	9.38	8.53	8.31	3.50	---	5.70	5.57
16	6.61	7.52	8.45	8.81	9.44	9.45	8.35	8.31	3.36	---	5.77	4.88
17	6.78	7.56	8.46	8.81	9.49	9.40	8.34	8.35	3.48	---	5.74	4.89
18	6.91	7.63	8.48	8.81	9.51	9.26	8.38	8.44	3.62	---	5.92	5.00
19	6.53	7.66	8.52	8.81	9.53	9.29	8.45	8.44	3.67	---	6.07	5.03
20	6.62	7.72	8.49	8.87	9.58	9.31	8.52	8.14	---	---	5.99	4.91
21	6.71	7.76	8.41	8.88	9.58	9.31	8.54	8.16	---	---	6.03	5.03
22	6.81	7.81	8.48	8.89	9.56	9.33	8.59	8.18	---	---	6.09	5.13
23	6.93	7.83	8.53	8.91	9.55	9.37	8.68	7.33	---	---	5.81	5.23
24	7.00	7.86	8.54	8.92	9.58	9.38	8.67	6.86	---	---	---	4.80
25	7.03	7.93	8.54	8.92	9.58	9.34	8.66	6.54	---	5.85	5.86	4.62
26	6.49	7.96	8.54	8.93	9.57	9.35	8.65	6.00	---	5.99	5.71	4.48
27	6.54	7.99	8.54	8.97	9.56	9.34	8.73	5.44	---	5.81	5.57	4.47
28	6.68	7.94	8.57	9.00	9.55	9.29	8.76	5.38	---	5.97	4.97	4.54
29	6.77	8.00	8.58	9.02	9.54	9.29	8.79	5.36	---	6.05	4.95	4.61
30	6.88	8.00	8.62	9.03	---	9.32	8.80	5.38	---	6.10	4.99	4.67
31	6.96	---	8.62	9.12	---	9.03	---	5.53	---	6.11	5.31	---
MEAN	6.79	7.53	8.37	8.79	9.42	9.41	8.74	7.76	4.17	5.98	5.92	5.13

WTR YR 1992 MEAN 7.55 HIGHEST 3.11 JUNE 15, 1992 LOWEST 9.60 FEB. 20, 1992



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## **Surface-Water Records for U.S. Virgin Islands**

## ST. THOMAS, U.S. VIRGIN ISLANDS

50252000 BONNE RESOLUTION GUT AT BONNE RESOLUTION, ST. THOMAS, VI

LOCATION.--Lat 18°21'57", long 64°57'34", Hydrologic Unit 21020001, on right bank near Hull Bay Road, 0.5 mi (0.8 km) upstream from Atlantic Ocean, and 2.5 mi (4.0 km) northwest of Fort Christian, Charlotte Amalie.

DRAINAGE AREA.--0.49 mi<sup>2</sup> (1.27 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1962 to February 1967, March 1979 to April 1981, May 1982 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 280 ft (85 m), from topographic map. December 1962 to February 1967 and March 1979 to April 1981 at site about 100 ft (30 m) upstream at different datum.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.02	.03	.02	.02	.02	e.01	.05	.03	.02	.02	.02
2	.06	.02	.04	.01	.02	.02	e.01	.05	.04	.02	.02	.02
3	.06	.02	.03	.01	.02	.02	e.01	.02	.03	.02	.02	.02
4	.04	.02	.03	.02	9.3	.02	e.01	.02	.03	.02	.02	.02
5	.04	.02	.03	7.9	.45	.02	e.01	.03	.03	.02	.05	.02
6	.04	.02	.02	2.5	.11	.02	e.01	.02	.02	.02	.02	.02
7	.04	.02	.03	.03	.09	.02	e.01	.02	.03	.02	.03	.02
8	.02	.14	.04	.01	.07	.02	e.01	.02	.03	.02	.02	.02
9	.03	.08	.03	.01	.07	.02	e.01	.02	.10	.01	.06	.02
10	.03	.04	.02	.02	.06	.02	e.01	.02	.04	.01	.03	.02
11	.03	.03	.02	.02	.06	.02	e.01	.02	.04	.01	.03	.01
12	.02	.03	.02	.01	.05	.02	e.01	.03	.04	.01	.03	.01
13	.03	.03	.01	.01	.05	.01	e.01	.02	.03	.02	.05	.01
14	.02	.03	.01	.01	.05	.01	e.01	e.03	.03	.07	.03	.01
15	.02	.03	.01	.01	.06	.02	e.01	.03	.03	.02	.03	.01
16	.02	.02	.03	.01	.06	.02	e.01	.05	.03	.02	.03	e.01
17	.02	.02	.03	.01	.06	.02	e.01	.08	.02	.02	.03	e.01
18	.03	.02	.02	.01	.04	.02	e.01	.10	.02	.02	.03	.01
19	.06	.02	.02	.01	.03	.01	e.01	.08	.02	.02	.03	.01
20	.07	.02	.02	.01	.03	.01	e.01	.03	.02	.02	.03	.01
21	.06	.02	.02	.01	.02	.01	e.01	.03	.02	.01	.01	.01
22	.05	.02	.03	.01	.03	.02	.03	.03	.02	.02	.02	.01
23	.03	.03	.03	.01	.03	.01	.04	.10	.02	.02	.02	.01
24	.02	.06	.03	.01	.03	.01	.05	5.9	.02	.02	.02	.01
25	.02	.03	.03	.02	.02	.02	.06	.11	.02	.02	.02	.01
26	.02	.03	.03	.02	.03	.03	.06	.07	.02	.02	.02	.01
27	.02	.03	.03	.02	.02	.13	.04	.05	.02	.02	.02	.01
28	.02	.03	.02	.02	.02	.05	.05	.08	.02	.02	.04	.01
29	.02	.04	.02	.02	.02	.04	.06	.05	.02	.02	.03	.01
30	.02	.03	.02	.02	---	.02	.18	.05	.02	.01	.02	.01
31	.02	---	.02	.02	---	e.03	---	.06	---	.03	.02	---
TOTAL	1.01	0.97	0.77	10.82	10.92	0.73	0.78	7.27	0.86	0.62	0.85	0.40
MEAN	.033	.032	.025	.35	.38	.024	.026	.23	.029	.020	.027	.013
MAX	.07	.14	.04	7.9	9.3	.13	.18	5.9	.10	.07	.06	.02
MIN	.02	.02	.01	.01	.02	.01	.01	.02	.02	.01	.01	.01
AC-FT	2.0	1.9	1.5	21	22	1.4	1.5	14	1.7	1.2	1.7	.8
CFSM	.07	.07	.05	.71	.77	.05	.05	.48	.06	.04	.06	.03
IN.	.08	.07	.06	.82	.83	.06	.06	.55	.07	.05	.06	.03

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1992, BY WATER YEAR (WY)

	1986	1987	1988	1989	1990	1991	1992
MEAN	.78	1.08	.043	.082	.082	.078	.091
MAX	3.09	4.22	.059	.35	.38	.31	.34
(WY)	1986	1988	1988	1992	1992	1987	1986
MIN	.033	.016	.010	.016	.009	.024	.012
(WY)	1992	1990	1990	1986	1986	1992	1989

## SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1963 - 1992

	1991 CALENDAR YEAR	1992 WATER YEAR	WATER YEARS 1963 - 1992
ANNUAL TOTAL	11.46	36.00	
ANNUAL MEAN	.031	.098	.31
HIGHEST ANNUAL MEAN			.77
LOWEST ANNUAL MEAN			.026
HIGHEST DAILY MEAN	.62 Jun 30	9.3 Feb 4	160 Apr 18 1963
LOWEST DAILY MEAN	.01 May 14	.01 Dec 13	.00 Apr 11 1980
ANNUAL SEVEN-DAY MINIMUM	.01 May 19	.01 Jan 12	.00 Apr 11 1980
INSTANTANEOUS PEAK FLOW		342 Feb 4	1650 Apr 18 1983
INSTANTANEOUS PEAK STAGE		4.17 Feb 4	7.00 Apr 18 1983
INSTANTANEOUS LOW FLOW		0.01 Oct 31	
ANNUAL RUNOFF (AC-FT)	23	71	224
ANNUAL RUNOFF (CFSM)	.064	.20	.63
ANNUAL RUNOFF (INCHES)	.87	2.73	8.59
10 PERCENT EXCEEDS	.06	.06	.15
50 PERCENT EXCEEDS	.02	.02	.03
90 PERCENT EXCEEDS	.01	.01	.01



## ST. THOMAS, U.S. VIRGIN ISLANDS

50276000 TURPENTINE RUN AT MARIENDAL, ST. THOMAS, VI

LOCATION.--Lat 18°19'48", long 64°52'58", Hydrologic Unit 21020001, on right bank, at Mariendal, 1.0 mi (1.6 km) upstream from mouth, and 3.3 mi (5.3 km) southeast of Fort Christian, Charlotte Amalie.

DRAINAGE AREA.--2.97 mi<sup>2</sup> (7.69 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to April 1969, October 1978 to September 1980, June 1982 to July 1986, July 1986 to current year (high-water discharges only).

GAGE.--Crest-stage gage. Elevation of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records poor, peak discharges only.

AVERAGE DISCHARGES.--10 years (1964-68, 1979-80, 1983-85), 1.22 ft<sup>3</sup>/s (0.034 m<sup>3</sup>/s), 5.58 in/yr (142 mm/yr), 884 acre-ft/yr (1.09 hm<sup>3</sup>/yr); median of yearly mean discharges, 0.54 ft<sup>3</sup>/s (0.015 m<sup>3</sup>/s), 390 acre-ft/yr (0.48 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,710 ft<sup>3</sup>/s (275 m<sup>3</sup>/s), Apr. 18, 1983, gage height, 11.09 ft (3.380 m), from floodmark, from rating curve extended above 500 ft<sup>3</sup>/s (14.2 m<sup>3</sup>/s) on basis of slope area measurement and step-backwater analysis; no flow many days from 1963 to 1969, and in 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 384 ft<sup>3</sup>/s (10.9 m<sup>3</sup>/s), Jan. 5, gage-height 4.09 ft (1.247 m).

## ST. JOHN, U.S. VIRGIN ISLANDS

50295000 GUINEA GUT AT BETHANY, ST. JOHN, VI

LOCATION.--Lat 18°19'55", long 64°46'50", Hydrologic Unit 21020001, 600 ft (183 m) southeast of Bethany Church, and 1.0 mi (1.6 km) east of Government House at Cruz Bay.

DRAINAGE AREA.--0.37 mi<sup>2</sup> (0.96 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to October 1967, September 1982 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 260 ft (79 m), from topographic map. Prior to September 1982, at datum 1.00 ft (0.30 m) higher.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.01	.04	.01	.01	.00
2	.00	.00	.00	.00	.00	.00	.00	.49	.03	.01	.01	.00
3	.00	.00	.00	.00	.00	.00	.00	.06	.03	.01	.02	.00
4	.00	.00	.00	.00	.00	.00	.00	.02	.03	.01	.02	.00
5	.00	.00	.00	.00	.00	.00	.00	.01	.03	.01	.02	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.03	.01	.02	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.02	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.02	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.01	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.01	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	e.01	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	e.01	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	e.01	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	e.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	e.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	e.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	e.00	.00
18	.00	.00	.00	.00	.00	.01	.00	.00	.01	.01	e.00	.02
19	.00	.00	.00	.00	.00	.01	.00	.00	.01	.01	.00	.01
20	.00	.00	.00	.00	.00	.01	.00	.00	.01	.01	.00	.01
21	.00	.00	.00	.00	.00	.01	.00	.00	.01	.01	.00	.01
22	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.01
23	.00	.00	.00	.00	.00	.00	.00	.01	.01	.01	.00	.01
24	.00	.00	.00	.00	.00	.00	.00	7.5	.01	.01	.00	.01
25	.00	.00	.00	.00	.00	.00	.00	.94	.01	.01	.00	.01
26	.00	.00	.00	.00	.00	.00	.00	.37	.01	.01	.00	.02
27	.00	.00	.00	.00	.00	.00	.00	.19	.01	.01	.00	.02
28	.00	.00	.00	.00	.00	.00	.00	.08	.01	.01	.00	.02
29	.00	.00	.00	.00	.00	.00	.00	.06	.01	.01	.00	.02
30	.00	.00	.00	.00	.00	.00	.01	.05	.01	.01	.00	.02
31	.00	---	.00	.00	---	.00	---	.04	---	.01	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.04	0.01	9.83	0.43	0.31	0.19	0.19
MEAN	.000	.000	.000	.000	.000	.001	.000	.32	.014	.010	.006	.006
MAX	.00	.00	.00	.00	.00	.01	.01	7.5	.04	.01	.02	.02
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.00
AC-FT	.00	.00	.00	.00	.00	.08	.02	.19	.9	.6	.4	.4
CFSM	.00	.00	.00	.00	.00	.00	.00	.86	.04	.03	.02	.02
IN.	.00	.00	.00	.00	.00	.00	.00	.99	.04	.03	.02	.02

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1992, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	.069	.45	.027	.016	.006	.005	.025	.14	.011
MAX	.23	2.52	.11	.044	.017	.009	.17	.89	.031
(WY)	1986	1985	1989	1989	1989	1985	1986	1987	1990
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1992	1992	1987	1992	1992	1986	1992	1988	1991

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1963 - 1992
ANNUAL TOTAL	0.50	11.00	
ANNUAL MEAN	.001	.030	.086
HIGHEST ANNUAL MEAN			.35
LOWEST ANNUAL MEAN			.002
HIGHEST DAILY MEAN	.03 Apr 8	7.5 May 24	110 Apr 17 1983
LOWEST DAILY MEAN	.00 Jan 21	.00 Oct 1	.00 Oct 25 1983
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 21	.00 Oct 1	.00 Feb 16 1984
INSTANTANEOUS PEAK FLOW		31 May 24	946 Apr 18 1983
INSTANTANEOUS PEAK STAGE		2.31 May 24	5.33 Apr 18 1983
ANNUAL RUNOFF (AC-FT)	1.0	22	62
ANNUAL RUNOFF (CFSM)	.004	.081	.25
ANNUAL RUNOFF (INCHES)	.05	1.11	3.16
10 PERCENT EXCEEDS	.01	.01	.05
50 PERCENT EXCEEDS	.00	.00	.01
90 PERCENT EXCEEDS	.00	.00	.00

## ST. JOHN, U.S. VIRGIN ISLANDS

50295500 CRUZ BAY GUT AT CRUZ BAY, ST. JOHN, VI

LOCATION.--Lat 18°19'42", long 64°45'53", Hydrologic Unit 21020001, 0.40 mi (0.64 km) east of Government House at Cruz Bay, 0.45 mi (0.72 km) west of Bethany Church and 0.40 mi (0.64 km) Southwest of Caneel Hill.

DRAINAGE AREA.--0.09 mi<sup>2</sup> (0.23 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--April to September 1992 (gage-height only).

GAGE.--Water-stage recorder. Elevation of gage is 120 ft (37 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 1.36 ft or lower are considered zero flow.

EXTREMES FOR CURRENT PERIOD.--Maximum gage-height, 2.87 ft (0.875 m), May 24; minimum, 1.32 ft (0.402 m), Apr. 18-20.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1								1.36	1.36	1.36	1.36	1.36
2								1.83	1.35	1.36	1.36	1.36
3								1.36	1.35	1.36	1.36	1.36
4								1.36	1.35	1.35	1.36	1.36
5								1.36	1.35	1.36	1.36	1.36
6								1.36	1.36	1.35	1.36	1.36
7								1.36	1.35	1.35	1.36	1.36
8								1.35	1.36	1.35	1.36	1.36
9								1.36	1.36	1.35	1.36	1.36
10								1.36	1.36	1.35	1.36	1.36
11								1.36	1.36	1.35	1.36	1.36
12								1.36	1.36	1.35	1.36	1.36
13								1.36	1.36	1.35	1.36	1.36
14								1.35	1.36	1.36	1.36	1.36
15								1.35	1.36	1.35	1.36	1.36
16								1.35	1.36	1.35	1.36	1.36
17								1.35	1.36	1.35	1.36	1.36
18								1.35	1.36	1.35	1.36	1.36
19							1.32	1.35	1.36	1.35	1.36	1.36
20							1.33	1.35	1.36	1.36	1.36	1.36
21							1.33	1.34	1.36	1.35	1.36	1.36
22							1.34	1.34	1.35	1.36	1.36	1.36
23							1.34	1.34	1.36	1.36	1.36	1.36
24							1.35	2.18	1.36	1.36	1.36	1.36
25							1.35	1.83	1.36	1.36	1.36	1.36
26							1.35	1.69	1.36	1.36	1.36	1.36
27							1.35	1.45	1.36	1.36	1.36	1.36
28							1.36	1.35	1.36	1.36	1.36	1.36
29							1.36	1.35	1.36	1.36	1.36	1.36
30							1.36	1.35	1.36	1.35	1.36	1.36
31							---	1.35	---	1.36	1.36	---
MEAN							---	1.42	1.36	1.35	1.36	1.36
MAX							---	2.18	1.36	1.36	1.36	1.36
MIN							---	1.34	1.35	1.35	1.36	1.36

## ST. CROIX, U.S. VIRGIN ISLANDS

50332000 RIVER GUT AT RIVER, ST. CROIX, VI

LOCATION.--Lat 17°44'32", long 64°48'52", Hydrologic Unit 21020002, 0.20 mi (0.32 km) North from Quarry, 0.72 mi (1.16 km) northwest from Holly Cross church on route 72, 0.80 mi (1.29 km) southwest from top of Mt. Pleasant.

DRAINAGE AREA.--1.42 mi<sup>2</sup> (3.68 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--November 1991 to September 1992 (gage-height only).

GAGE.--Water-stage recorder. Datum of gage is 155 ft (47 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 29.60 ft or lower are considered zero flow.

EXTREMES FOR CURRENT PERIOD.--Maximum gage-height, 35.81 ft (10.915 m), May 24; minimum, 26.51 ft (8.080 m), many days.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			30.87	29.95	29.93	29.46	28.89	29.35	30.62	29.99	29.53	28.62
2			30.91	29.88	29.89	29.42	28.87	28.68	30.59	29.94	29.49	28.68
3			30.93	29.82	29.88	29.40	28.89	28.62	30.61	29.90	29.44	28.66
4			30.96	29.79	29.87	29.37	28.89	28.58	30.57	29.87	29.44	28.65
5		29.78	30.86	29.73	29.88	29.36	28.92	28.59	30.57	29.84	29.56	28.67
6		29.79	30.95	---	29.91	29.35	28.95	28.55	30.57	29.79	29.53	28.57
7		29.86	30.86	---	29.94	29.32	29.02	28.53	30.56	29.73	29.49	28.47
8		29.99	30.90	---	29.86	29.30	29.08	28.53	30.56	29.73	29.47	28.51
9		29.99	30.95	30.20	29.80	29.31	29.21	28.50	30.56	29.71	29.45	28.57
10		29.98	30.92	30.31	29.79	29.32	29.25	28.54	30.57	29.68	29.40	28.51
11		29.96	30.88	30.35	29.76	29.28	29.27	28.51	30.57	29.66	29.39	28.50
12		29.93	30.85	30.38	29.76	29.25	29.31	28.93	30.57	29.62	29.34	28.53
13		29.92	30.80	30.44	29.76	29.24	29.33	29.29	30.57	29.61	29.31	28.62
14		29.91	30.68	30.44	29.72	29.23	29.36	29.32	30.56	29.61	29.28	28.62
15		29.89	30.66	30.44	29.69	29.19	29.35	29.31	30.55	29.61	29.25	28.54
16		29.87	30.53	30.46	29.66	29.18	29.33	29.70	30.54	29.59	29.16	28.44
17		29.84	30.47	30.46	29.64	29.19	29.32	29.78	30.54	29.60	29.10	28.47
18		29.82	29.90	30.41	29.63	29.12	29.30	29.61	30.53	29.59	29.08	28.52
19		29.80	29.39	30.36	29.63	29.13	29.75	29.56	30.52	29.61	29.06	28.51
20		29.77	29.28	30.32	29.64	29.06	30.10	29.56	30.50	29.60	28.99	28.47
21		29.81	30.26	30.29	29.62	29.01	29.94	29.57	30.48	29.58	28.89	28.47
22		29.93	30.28	30.19	29.59	29.05	29.84	29.56	30.46	29.62	28.88	28.76
23		29.93	30.24	30.18	29.56	29.06	29.76	29.56	30.44	29.63	28.90	29.14
24		30.46	30.25	30.12	29.54	29.00	29.72	31.51	30.42	29.65	28.84	29.13
25		30.76	30.24	30.17	29.53	28.94	29.68	30.86	30.40	29.65	28.77	29.12
26		30.77	30.25	30.25	29.53	28.86	29.66	30.74	30.36	29.65	28.72	29.11
27		30.78	30.26	30.16	29.52	29.00	29.66	30.70	30.32	29.65	28.81	29.08
28		30.82	30.23	30.06	29.50	28.89	29.65	30.68	30.22	29.65	28.76	29.07
29		30.80	30.16	30.03	29.48	28.88	29.63	30.60	30.12	29.62	28.72	30.31
30		30.77	30.11	29.99	---	28.89	29.60	30.71	30.05	29.58	28.75	30.83
31		---	30.02	29.95	---	28.91	---	30.72	---	29.54	28.68	---
MEAN		---	30.48	---	29.71	29.16	29.38	29.52	30.48	29.68	29.14	28.80
MAX		---	30.96	---	29.94	29.46	30.10	31.51	30.62	29.99	29.56	30.83
MIN		---	29.28	---	29.48	28.86	28.87	28.50	30.05	29.54	28.68	28.44

## ST. CROIX, U.S. VIRGIN ISLANDS

50333500 RIVER GUT NEAR GOLDEN GROVE, ST. CROIX, VI

LOCATION.--Lat 17°42'46", long 64°47'58", Hydrologic Unit 21020002, on right bank, 0.4 mi (0.6 km) from Experimental Station, 0.9 mi (1.4 km) from intersection of Highway 66 and road 64, 0.3 mi (0.5 km) from University of the U.S. Virgin Islands (UVI).

DRAINAGE AREA.--5.40 mi<sup>2</sup> (9.14 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is mean sea level.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.27	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.27	0.00	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	2.69	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	83	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	165	.00	.00	.00	.00
CFSM	.00	.00	.00	.00	.00	.00	.00	.50	.00	.00	.00	.00
IN.	.00	.00	.00	.00	.00	.00	.00	.57	.00	.00	.00	.00

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1992, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1990	6.79	13.6	1991	.000	1991
1991	.43	.85	1991	.000	1991
1992	.005	.009	1991	.000	1991
1993	.000	.000	1991	.000	1991
1994	.000	.000	1991	.000	1991
1995	.000	.000	1991	.000	1991
1996	.000	.000	1991	.000	1991
1997	.000	.000	1991	.000	1991
1998	.000	.000	1991	.000	1991
1999	.000	.000	1991	.000	1991
2000	.000	.000	1991	.000	1991
2001	.000	.000	1991	.000	1991
2002	.000	.000	1991	.000	1991
2003	.000	.000	1991	.000	1991
2004	.000	.000	1991	.000	1991
2005	.000	.000	1991	.000	1991
2006	.000	.000	1991	.000	1991
2007	.000	.000	1991	.000	1991
2008	.000	.000	1991	.000	1991
2009	.000	.000	1991	.000	1991
2010	.000	.000	1991	.000	1991
2011	.000	.000	1991	.000	1991
2012	.000	.000	1991	.000	1991
2013	.000	.000	1991	.000	1991
2014	.000	.000	1991	.000	1991
2015	.000	.000	1991	.000	1991
2016	.000	.000	1991	.000	1991
2017	.000	.000	1991	.000	1991
2018	.000	.000	1991	.000	1991
2019	.000	.000	1991	.000	1991
2020	.000	.000	1991	.000	1991
2021	.000	.000	1991	.000	1991
2022	.000	.000	1991	.000	1991
2023	.000	.000	1991	.000	1991
2024	.000	.000	1991	.000	1991
2025	.000	.000	1991	.000	1991
2026	.000	.000	1991	.000	1991
2027	.000	.000	1991	.000	1991
2028	.000	.000	1991	.000	1991
2029	.000	.000	1991	.000	1991
2030	.000	.000	1991	.000	1991
2031	.000	.000	1991	.000	1991

## SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1990 - 1992

ANNUAL TOTAL	83.27		
ANNUAL MEAN	.23		
HIGHEST ANNUAL MEAN		.73	
LOWEST ANNUAL MEAN		1.22	1991
HIGHEST DAILY MEAN		.23	1992
LOWEST DAILY MEAN		169	Oct 26 1990
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 1	.00 Oct 1	.00 Aug 30 1990
INSTANTANEOUS PEAK FLOW	.00 Jan 1	.00 Oct 1	.00 Aug 30 1990
INSTANTANEOUS PEAK STAGE		742 May 25	860 Oct 26 1990
ANNUAL RUNOFF (AC-FT)		48.69 May 25	49.03 Oct 26 1990
ANNUAL RUNOFF (CFSM)		165	525
ANNUAL RUNOFF (INCHES)		.042	.13
10 PERCENT EXCEEDS	.00	.57	1.82
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

## ST. CROIX, U.S. VIRGIN ISLANDS

50333700 RIVER GUT AT HWY 66 AT FAIRPLAINS, ST. CROIX, VI

LOCATION.--Lat 17°42'31", long 64°47'16", Hydrologic Unit 21020002, 1.00 mi (1.61 km) southeast from Experimental Station, 1.10 mi (1.77 km) southeast from Hwy 70 and Hwy 64 intersection, 0.50 mi (0.80 km) west from Anguilla ruins.

DRAINAGE AREA.--5.89 mi<sup>2</sup> (15.26 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--May 1990 to current year (gage-height only).

GAGE.--Water-stage recorder. Elevation of gage is 20 ft (6 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR CURRENT PERIOD.--MAY TO SEPTEMBER 1990: Maximum gage-height during period, 10.56 ft (3.219 m); minimum, 10.46 ft (3.188 m), many days, but could be lower.

WATER YEAR 1991: Maximum gage-height, 13.87 ft (4.228 m), Oct. 14; minimum, 10.46 ft (3.188 m), many days, but could be lower.

WATER YEAR 1992: Maximum gage-height, 15.34 ft (4.676 m), May 25; minimum, 10.46 ft (3.188 m), many days, but could be lower.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									10.46	10.46	10.46	10.46
2									10.46	10.46	10.46	10.46
3									10.46	10.46	10.46	10.46
4								10.47	10.46	10.46	10.46	10.46
5								10.46	10.46	10.46	10.46	10.46
6								10.47	10.46	10.46	10.46	10.46
7								10.46	10.46	10.46	10.46	10.46
8								10.46	10.46	10.46	10.46	10.46
9								10.46	10.46	10.46	10.46	10.46
10								10.46	10.46	10.46	10.46	10.46
11								10.46	10.46	10.46	10.46	10.46
12								10.46	10.46	10.46	10.46	10.46
13								10.46	10.46	10.46	10.46	10.46
14								10.46	10.46	10.46	10.46	10.47
15								10.46	10.46	10.46	10.46	10.46
16								10.46	10.46	10.46	10.46	10.47
17								10.46	10.46	10.46	10.46	10.46
18								10.46	10.46	10.46	10.46	10.46
19								10.46	10.46	10.46	10.46	10.46
20								10.46	10.46	10.46	10.46	10.46
21								10.46	10.46	10.46	10.46	10.46
22								10.46	10.46	10.46	10.46	10.46
23								10.46	10.46	10.46	10.46	10.46
24								10.46	10.46	10.46	10.46	10.46
25								10.46	10.46	10.46	10.46	10.46
26								10.46	10.46	10.46	10.46	10.46
27								10.46	10.46	10.46	10.46	10.46
28								10.46	10.46	10.46	10.46	10.46
29								10.46	10.46	10.46	10.46	10.46
30								10.46	10.46	10.46	10.46	10.46
31								10.46	---	10.46	10.46	---
MEAN								---	10.46	10.46	10.46	10.46
MAX								---	10.46	10.46	10.46	10.47
MIN								---	10.46	10.46	10.46	10.46

## ST. CROIX, U.S. VIRGIN ISLANDS

50333700 RIVER GUT AT HWY 66 AT FAIRPLAINS, ST. CROIX, VI--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.47	10.46	10.46	10.46	10.46
2	10.46	10.46	10.46	10.46	10.46	10.48	10.46	10.47	10.46	10.46	10.46	10.46
3	10.46	10.46	10.46	10.46	10.46	10.48	10.46	10.47	10.46	10.46	10.46	10.46
4	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.47	10.46	10.46	10.46	10.46
5	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46
6	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46
7	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46
8	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46
9	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46
10	10.81	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46
11	11.23	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46
12	10.75	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46
13	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.47	10.46	10.46	10.46	10.46
14	11.33	10.46	10.46	10.46	10.47	10.46	10.46	10.47	10.46	10.46	10.46	10.46
15	10.48	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.47	10.46	10.46
16	10.98	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.47	10.46	10.46
17	10.67	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46
18	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46
19	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46
20	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.47	10.47	10.46	10.46	10.46
21	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.47	10.46	10.46	10.46	10.46
22	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.47	10.46	10.46	10.46	10.46
23	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.47	10.46	10.46	10.46	10.46
24	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.47	10.46	10.46	10.46	10.46
25	10.48	10.46	10.46	10.46	10.47	10.46	10.46	10.47	10.46	10.46	10.46	10.46
26	11.86	10.46	10.46	10.46	10.47	10.46	10.47	10.47	10.46	10.46	10.46	10.46
27	10.46	10.46	10.46	10.46	10.47	10.46	10.47	10.47	10.46	10.46	10.46	10.46
28	10.46	10.46	10.46	10.46	10.47	10.46	10.47	10.47	10.46	10.46	10.46	10.46
29	10.46	10.46	10.46	10.46	---	10.46	10.47	10.47	10.46	10.46	10.46	10.48
30	10.46	10.46	10.46	10.46	---	10.46	10.47	10.47	10.46	10.46	10.46	10.47
31	10.46	---	10.46	10.46	---	10.46	---	10.47	---	10.46	10.46	---
MEAN	10.60	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46
MAX	11.86	10.46	10.46	10.46	10.47	10.48	10.47	10.47	10.47	10.47	10.46	10.48
MIN	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46

## ST. CROIX, U.S. VIRGIN ISLANDS

50333700 RIVER GUT AT HWY 66 AT FAIRPLAINS, ST. CROIX, VI--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
2	10.47	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
3	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
4	10.47	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
5	10.46	10.47	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
6	10.47	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
7	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
8	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
9	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
10	10.47	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
11	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
12	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
13	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
14	10.47	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
15	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
16	10.47	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
17	10.47	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
18	10.47	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
19	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
20	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
21	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
22	10.46	10.47	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46
23	10.47	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
24	10.47	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
25	10.47	10.46	10.46	10.46	10.46	10.46	10.46	11.15	10.46	10.46	10.46	10.46
26	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.64	10.46	10.46	10.46	10.46
27	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46
28	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
29	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46
30	10.46	10.46	10.46	10.46	---	10.46	10.46	10.46	10.46	10.46	10.46	10.46
31	10.47	---	10.46	10.46	---	10.46	---	10.46	---	10.46	10.46	---
MEAN	10.47	10.47	10.46	10.46	10.46	10.46	10.46	10.49	10.46	10.46	10.46	10.46
MAX	10.47	10.47	10.47	10.46	10.46	10.47	10.46	11.15	10.46	10.46	10.46	10.46
MIN	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46



## ST. CROIX, U.S. VIRGIN ISLANDS

50334500 BETHLEHEM GUT AT HWY 66 AT FAIRPLAINS, ST.CROIX, VI

LOCATION.--Lat 17°42'31", long 64°47'15", Hydrologic Unit 21020002, 1.00 mi (1.61 km) southeast from Experimental Station, 1.10 mi (1.77 km) southeast from Hwy 70 and Hwy 64 intersection, 0.50 mi (0.80 km) west from Anguilla ruins.

DRAINAGE AREA.--4.11 mi<sup>2</sup> (10.64 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--1963 to 1969 monthly measurements only, May 1990 to current year (gage-height only). Prior to 1990 published as Bethlehem Gut at upper Bethlehem.

GAGE.--Water-stage recorder. Elevation of gage is 20 ft (6 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR CURRENT PERIOD.--MAY TO SEPTEMBER 1990: Maximum gage-height during period, 14.00 ft (4.267 m), Sept. 16; minimum, 11.45 ft (3.490 m), many days, but could be lower.

WATER YEAR 1991: Maximum gage-height, 18.33 ft (5.587 m), Oct. 26; minimum, 11.45 ft (3.490 m), many days, but could be lower.

WATER YEAR 1992: Maximum gage-height, 19.28 ft (5.876 m), May 25; minimum, 11.45 ft (3.490 m), many days, but could be lower.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									11.45	11.45	11.45	11.45
2									11.45	11.45	11.45	11.45
3									11.45	11.45	11.45	11.45
4								11.45	11.45	11.45	11.45	11.45
5								11.45	11.45	11.45	11.45	11.45
6								11.45	11.45	11.45	11.45	11.45
7								11.45	11.45	11.45	11.45	11.45
8								11.45	11.45	11.45	11.45	11.45
9								11.45	11.45	11.45	11.45	11.45
10								11.45	11.45	11.45	11.45	11.45
11								11.45	11.45	11.45	11.45	11.45
12								11.45	11.45	11.45	11.45	11.45
13								11.45	11.45	11.45	11.59	11.45
14								11.45	11.46	11.45	11.56	11.45
15								11.45	11.46	11.45	11.45	11.45
16								11.45	11.46	11.45	11.45	12.46
17								11.45	11.45	11.45	11.45	11.70
18								11.45	11.45	11.45	11.45	11.71
19								11.45	11.45	11.45	11.45	11.60
20								11.45	11.45	11.45	11.45	11.46
21								11.45	11.45	11.45	11.45	11.45
22								11.45	11.45	11.45	11.45	11.45
23								11.45	11.45	11.45	11.45	11.45
24								11.45	11.46	11.45	11.45	11.76
25								11.45	11.45	11.45	11.45	11.95
26								11.45	11.45	11.45	11.45	11.74
27								11.45	11.45	11.45	11.45	11.61
28								11.45	11.45	11.45	11.45	11.51
29								11.45	11.45	11.45	11.45	11.64
30								11.45	11.45	11.45	11.45	11.87
31								11.45	---	11.45	11.45	---
MEAN								---	11.45	11.45	11.46	11.57
MAX								---	11.46	11.45	11.59	12.46
MIN								---	11.45	11.45	11.45	11.45

## ST. CROIX, U.S. VIRGIN ISLANDS

50334500 BETHLEHEM GUT AT HWY 66 AT FAIRPLAINS, ST. CROIX, VI--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

[illegible]

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.45	11.45	11.45	11.45	11.46	11.45	11.46	11.45	11.88	11.45	11.45	11.45
2	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.82	11.45	11.45	11.45
3	11.45	11.45	11.45	11.45	11.46	11.45	11.46	11.45	11.76	11.45	11.45	11.45
4	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.70	11.45	11.45	11.45
5	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.63	11.45	11.45	11.45
6	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.57	11.45	11.45	11.45
7	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.51	11.45	11.45	11.45
8	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.46	11.45	11.45	11.45
9	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
10	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
11	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
12	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
13	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
14	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
15	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
16	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
17	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
18	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
19	11.45	11.45	11.45	11.45	11.45	11.45	11.47	11.45	11.45	11.45	11.45	11.45
20	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
21	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
22	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
23	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45	11.45	11.45	11.45
24	11.45	11.45	11.46	11.45	11.45	11.45	11.46	11.92	11.45	11.45	11.45	11.45
25	11.45	11.45	11.46	11.45	11.45	11.45	11.46	13.09	11.45	11.45	11.45	11.45
26	11.45	11.45	11.46	11.45	11.45	11.45	11.46	12.77	11.45	11.45	11.45	11.45
27	11.45	11.45	11.46	11.45	11.45	11.45	11.46	12.43	11.45	11.45	11.45	11.45
28	11.45	11.45	11.45	11.45	11.45	11.46	11.46	12.23	11.45	11.45	11.45	11.45
29	11.45	11.45	11.45	11.45	11.45	11.46	11.45	12.11	11.45	11.45	11.45	11.45
30	11.45	11.45	11.45	11.45	---	11.46	11.45	12.03	11.45	11.45	11.45	11.45
31	11.45	---	11.45	11.46	---	11.46	---	11.96	---	11.45	11.45	---
MEAN	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.67	11.51	11.45	11.45	11.45
MAX	11.45	11.45	11.46	11.46	11.46	11.46	11.47	13.09	11.88	11.45	11.45	11.45
MIN	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45

## ST. CROIX, U.S. VIRGIN ISLANDS

503375000 GUT 4.5 AT CANE VALLEY, ST. CROIX, VI

LOCATION.--Lat 17°43'25", long 66°51'01", Hydrologic Unit 21020002, 2.1 mi (3.4 km) northeast from St. Patricks School at Frederiksted, 1.6 mi (2.6 km) northeast from Zion Church on Centerline road and 1.25 mi (2.0 km) from Mother of Perpetual Help Church near Monpedlier road 76.

DRAINAGE AREA.--0.21 mi<sup>2</sup> (0.54 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--October 1991 to September 1992 (gage-height only).

GAGE.--Water-stage recorder. Elevation of gage is 300 ft (91 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-height of 49.28 ft or lower are considered zero flow.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 50.65 ft (15.438 m) May 24; minimum, 49.27 ft (15.017 m), many days.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49.28	49.28	49.28	49.28	49.28	49.28	49.27	49.27	49.29	---	---	49.28
2	49.28	49.28	49.28	49.28	49.28	49.28	49.27	49.27	49.29	---	---	49.28
3	49.28	49.28	49.28	49.28	49.28	49.28	49.27	49.27	49.29	---	---	49.28
4	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.27	49.29	---	---	49.28
5	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.27	49.29	---	---	49.28
6	49.27	49.30	49.28	49.28	49.28	49.28	49.27	49.27	49.29	---	---	49.28
7	49.27	---	49.28	49.28	49.28	49.28	49.27	49.27	49.29	---	---	49.28
8	49.27	---	49.28	49.28	49.28	49.28	49.27	49.27	49.29	---	---	49.28
9	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.27	49.29	---	---	49.28
10	49.27	49.28	49.28	49.28	49.28	49.28	49.28	49.27	49.29	---	---	49.28
11	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.27	49.29	---	---	49.28
12	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.27	---	---	---	49.28
13	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.27	---	---	---	49.28
14	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.27	---	---	---	49.28
15	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.28	---	---	---	49.28
16	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.28	---	---	---	49.28
17	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.28	---	---	---	49.28
18	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.28	---	---	---	49.28
19	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.28	---	---	---	49.28
20	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.28	---	---	---	49.28
21	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.28	---	---	---	49.28
22	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.28	---	---	---	49.28
23	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.28	---	---	---	49.28
24	49.27	49.28	49.28	49.28	49.28	49.28	49.27	49.81	---	---	---	49.28
25	49.28	49.28	49.28	49.28	49.28	49.28	49.27	49.76	---	---	---	49.28
26	49.28	49.28	49.28	49.28	49.28	49.28	49.27	49.45	---	---	---	49.28
27	49.28	49.28	49.28	49.28	49.28	49.27	49.27	49.27	---	---	---	49.28
28	49.28	49.28	49.28	49.28	49.28	49.27	49.27	49.29	---	---	49.28	49.28
29	49.28	49.28	49.28	49.28	49.28	49.27	49.27	49.29	---	---	49.28	49.50
30	49.28	49.28	49.28	49.28	---	49.27	49.27	49.29	---	---	49.28	49.33
31	49.28	---	49.28	49.28	---	49.27	---	49.29	---	---	49.28	---
MEAN	49.27	---	49.28	49.28	49.28	49.28	49.27	49.31	---	---	---	49.29
MAX	49.28	---	49.28	49.28	49.28	49.28	49.28	49.81	---	---	---	49.50
MIN	49.27	---	49.28	49.28	49.28	49.27	49.27	49.27	---	---	---	49.28

## ST. CROIX, U.S. VIRGIN ISLANDS

50345000 JOLLY HILL GUT AT JOLLY HILL, ST. CROIX, VI

LOCATION.--Lat 17°44'00", long 64°51'47", Hydrologic Unit 21020002, on Mahogany Road at Jolly Hill, 1.8 mi (2.9 km) northeast of Frederiksted.

DRAINAGE AREA.--2.10 mi<sup>2</sup> (5.44 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to December 1968. Monthly measurements, 1962-69. October 1982 to current year.

GAGE.--Water-stage recorder, crest-stage gage and sharp-crested concrete control. Elevation of gage is 140 ft (43 m), from topographic map.

REMARKS.--Records poor. Low-water diversions upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.35	.00	.24	.00	e.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.31	.00	e.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.31	.00	e.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.29	.00	e.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.29	.00	e.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.29	.00	e.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.25	.00	e.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.24	.00	e.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.23	.00	e.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.25	.00	e.00	.00
11	.00	.00	.00	.00	.00	.00	.00	e.00	.22	.00	e.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.22	.00	e.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.21	.00	e.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	e.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.19	.00	e.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.23	.00	e.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	e.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	e.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	e.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.04
21	.00	.00	.00	.00	.00	.00	.00	.00	.12	.00	.00	.12
22	.00	.00	.00	.00	.00	.00	.00	.00	.11	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.11	.00	.00	.01
24	.00	.00	.00	.00	.00	.00	.00	.00	.09	.18	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.51	.08	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.33	.07	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.30	.06	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.29	.09	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.29	.06	.00	.00	.66
30	.00	.00	.00	.00	---	.00	.00	.32	.02	e.00	.00	2.8
31	.00	---	.00	.00	---	.00	---	.28	---	e.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.35	14.32	5.40	0.18	0.00	3.63
MEAN	.000	.000	.000	.000	.000	.000	.012	.46	.18	.006	.000	.12
MAX	.00	.00	.00	.00	.00	.00	.35	.12	.31	.18	.00	2.8
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.7	.28	.11	.4	.00	7.2
CFSM	.00	.00	.00	.00	.00	.00	.01	.22	.09	.00	.00	.06
IN.	.00	.00	.00	.00	.00	.00	.01	.25	.10	.00	.00	.06

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1992, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1986	.69	2.14	1991	.000	1987
1987	1.00	2.33	1988	.000	1992
1988	.66	2.34	1988	.000	1992
1989	.33	.88	1988	.000	1992
1990	.20	.55	1988	.000	1989
1991	.11	.34	1990	.000	1989
1992	.084	.23	1990	.000	1989
1993	.14	.46	1992	.000	1989
1994	.28	1.43	1987	.000	1989
1995	.096	.52	1987	.000	1989
1996	.040	.18	1987	.000	1989
1997	.35	2.15	1989	.000	1991

## SUMMARY STATISTICS

## FOR 1991 CALENDAR YEAR

## FOR 1992 WATER YEAR

## WATER YEARS 1963 - 1992

ANNUAL TOTAL	17.68	23.88	
ANNUAL MEAN	.048	.065	.19
HIGHEST ANNUAL MEAN			.58
LOWEST ANNUAL MEAN			.0003
HIGHEST DAILY MEAN	.33 Jan 2	12 May 24	22 Nov 27 1987
LOWEST DAILY MEAN	.00 Jun 14	.00 Oct 1	.00 Oct 1 1965
ANNUAL SEVEN-DAY MINIMUM	.00 Jun 14	.00 Oct 1	.00 Sep 4 1965
INSTANTANEOUS PEAK FLOW		118 May 24	430 Nov 27 1987
INSTANTANEOUS PEAK STAGE		2.81 May 24	4.14 Nov 27 1987
ANNUAL RUNOFF (AC-FT)	35	47	140
ANNUAL RUNOFF (CFSM)	.023	.031	.09
ANNUAL RUNOFF (INCHES)	.31	.42	1.25
10 PERCENT EXCEEDS	.20	.10	.84
50 PERCENT EXCEEDS	.00	.00	.04

## ST. CROIX, U.S. VIRGIN ISLANDS

50348000 SALT RIVER AT CANNAN, ST. CROIX, VI

LOCATION.--Lat 17°45'40", long 64°47'53", Hydrologic Unit 21020002, 6.20 mi (9.98 km) northwest from Cristianted Government House, 4.15 mi (6.68 km) north from Alexander Hamilton Airport main building, 3.10 mi (4.99 km) northeast from St. Lukes church at Grove Place.

DRAINAGE AREA.--0.36 mi<sup>2</sup> (0.93 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--September 1991 to September 1992 (gage-height only).

GAGE.--Water-stage recorder. Datum of gage is 315 ft (96 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 49.02 ft or lower are considered zero flow.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 51.20 ft (15.606 m), May 24; minimum recorded, 48.98 ft (14.929 m), June 11-15.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49.03	48.99	49.00	49.02	---	49.02	49.03	49.02	49.03	---	---	49.02
2	49.03	49.00	49.00	49.01	---	49.02	49.03	49.02	49.03	---	---	49.02
3	49.02	49.00	49.00	---	---	49.02	49.03	49.02	49.02	---	---	49.02
4	49.02	49.01	49.00	---	---	49.02	49.03	49.02	49.02	---	---	49.02
5	49.01	49.01	49.00	---	---	49.02	49.03	49.02	49.02	---	---	49.02
6	49.01	49.02	49.01	---	---	49.02	49.03	49.02	49.02	---	---	49.02
7	49.01	49.02	49.01	---	---	49.02	49.03	49.02	49.02	---	---	49.02
8	49.01	49.02	49.01	---	---	49.02	49.03	49.02	49.02	---	---	49.02
9	49.01	49.00	49.01	---	---	49.02	49.03	49.02	49.02	---	---	49.02
10	49.00	49.00	49.01	---	---	49.02	49.03	49.02	49.02	---	---	49.02
11	49.00	49.00	49.01	---	48.99	49.02	49.02	49.02	49.00	---	---	49.02
12	49.00	49.00	49.01	---	49.01	49.02	49.02	49.02	48.98	---	---	49.02
13	49.00	49.00	49.01	---	49.01	49.02	49.02	49.02	48.98	---	---	49.02
14	49.01	49.00	49.01	---	49.01	49.02	49.02	49.02	48.98	---	---	49.02
15	49.01	49.00	49.02	---	49.02	49.02	49.02	49.03	48.98	---	---	49.02
16	49.01	49.00	49.02	---	49.02	49.02	49.02	49.03	---	---	---	49.02
17	49.01	49.00	49.02	---	49.03	49.02	49.02	49.03	---	---	---	49.02
18	49.01	49.00	49.02	---	49.02	49.02	49.02	49.03	---	---	---	49.02
19	49.01	49.00	49.02	---	49.02	49.02	49.02	49.03	---	---	---	49.02
20	49.01	49.00	49.02	---	49.02	49.02	49.02	49.03	---	---	---	49.02
21	49.01	49.00	49.02	---	49.02	49.02	49.02	49.03	---	---	---	49.02
22	49.01	49.00	49.02	---	49.02	49.02	49.02	49.03	---	---	---	49.02
23	49.01	49.00	49.02	---	49.02	49.02	49.02	49.03	---	---	---	49.02
24	49.03	49.00	49.02	---	49.02	49.02	---	49.53	---	---	---	49.02
25	49.02	49.00	49.02	---	49.02	49.02	---	49.15	---	---	---	49.02
26	49.02	49.00	49.02	---	49.02	49.02	---	49.07	---	---	---	49.02
27	49.02	49.00	49.02	---	49.02	49.02	---	49.04	---	---	49.01	49.02
28	49.02	49.00	49.02	---	49.02	49.03	49.02	49.04	---	---	49.02	49.02
29	49.02	49.00	49.02	---	49.02	49.03	49.02	49.04	---	---	49.02	49.02
30	49.02	49.00	49.02	---	---	49.03	49.02	49.06	---	---	49.02	49.02
31	48.99	---	49.02	---	---	49.03	---	49.03	---	---	49.02	---
MEAN	49.01	49.00	49.01	---	---	49.02	---	49.05	---	---	---	49.02
MAX	49.03	49.02	49.02	---	---	49.03	---	49.53	---	---	---	49.02
MIN	48.99	48.99	49.00	---	---	49.02	---	49.02	---	---	---	49.02

## ST. CROIX, U.S. VIRGIN ISLANDS

50349000 GUT 10 NEAR ALTONA, ST. CROIX, VI

LOCATION.--Lat 17°44'00", long 64°41'30", Hydrologic Unit 21020002, 1.3 mi (2.1 km) southeast of Christiansted, 0.95 mi (1.53 km) west of Prospect Hill and 1.0 mi (1.6 km) north of junction of Highways 62 and 85.

DRAINAGE AREA.--0.13 mi<sup>2</sup> (0.34 km<sup>2</sup>).

## WATER-STAGE RECORDS

PERIOD OF RECORD.--November 1991 to September 1992 (gage-height only).

GAGE.--Water-stage recorder. Elevation of gage is 210 ft (64 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-height of 49.57 ft or lower are considered zero flow.

EXTREMES FOR CURRENT PERIOD.--Maximum gage height, 50.80 ft (15.484 m) May 25; minimum, 49.50 ft (15.088 m), Dec. 12,22.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		49.59	49.56	49.59	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
2		49.59	49.56	49.59	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
3		49.59	49.56	49.58	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
4		49.59	49.56	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
5		49.59	49.56	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
6		49.59	49.55	49.56	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
7		49.59	49.55	49.56	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
8		49.59	49.53	49.56	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
9		49.59	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
10		49.59	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
11		49.59	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
12		49.59	49.52	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
13		49.59	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
14		49.59	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
15		49.59	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
16		49.59	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.58
17		49.59	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.59
18		49.59	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.59
19		49.59	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.59
20		49.57	49.52	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.59
21		49.57	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.59
22		49.56	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.59
23		49.56	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.59
24		49.56	49.53	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57
25		49.57	49.53	49.57	49.57	49.57	49.57	---	49.57	49.57	49.57	49.59
26		49.56	49.54	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.59
27		49.56	49.58	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.59
28		49.56	49.59	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.59
29		49.56	49.59	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.57	49.59
30		49.56	49.59	49.57	---	49.57	49.57	49.57	49.57	49.57	49.57	49.59
31		---	49.59	49.57	---	49.57	---	49.57	---	49.57	49.57	---
MEAN		49.58	49.55	49.57	49.57	49.57	49.57	---	49.57	49.57	49.57	49.58
MAX		49.59	49.59	49.59	49.57	49.57	49.57	---	49.57	49.57	49.57	49.59
MIN		49.56	49.52	49.56	49.57	49.57	49.57	---	49.57	49.57	49.57	49.57

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## GROUND-WATER LEVELS

## ST. CROIX, U.S. VIRGIN ISLANDS

174225064471900. Local number, 1.

LOCATION.--Lat 17°42'25", long 64°47'19", Hydrologic Unit 21020002, 6 mi southwest of Christiansted Plaza, 1.00 mi southeast of the Experimental Station, and 0.50 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64. Owner: U.S. Virgin Islands Government, Name: Fairplains 6 (FP6).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Observation drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 20.0 ft (6.10 m) above mean sea level, from topographic map. Measuring point: Top of pump concrete base, 2.20 ft (0.67 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

PERIOD OF RECORD.--March 1982 to current year.

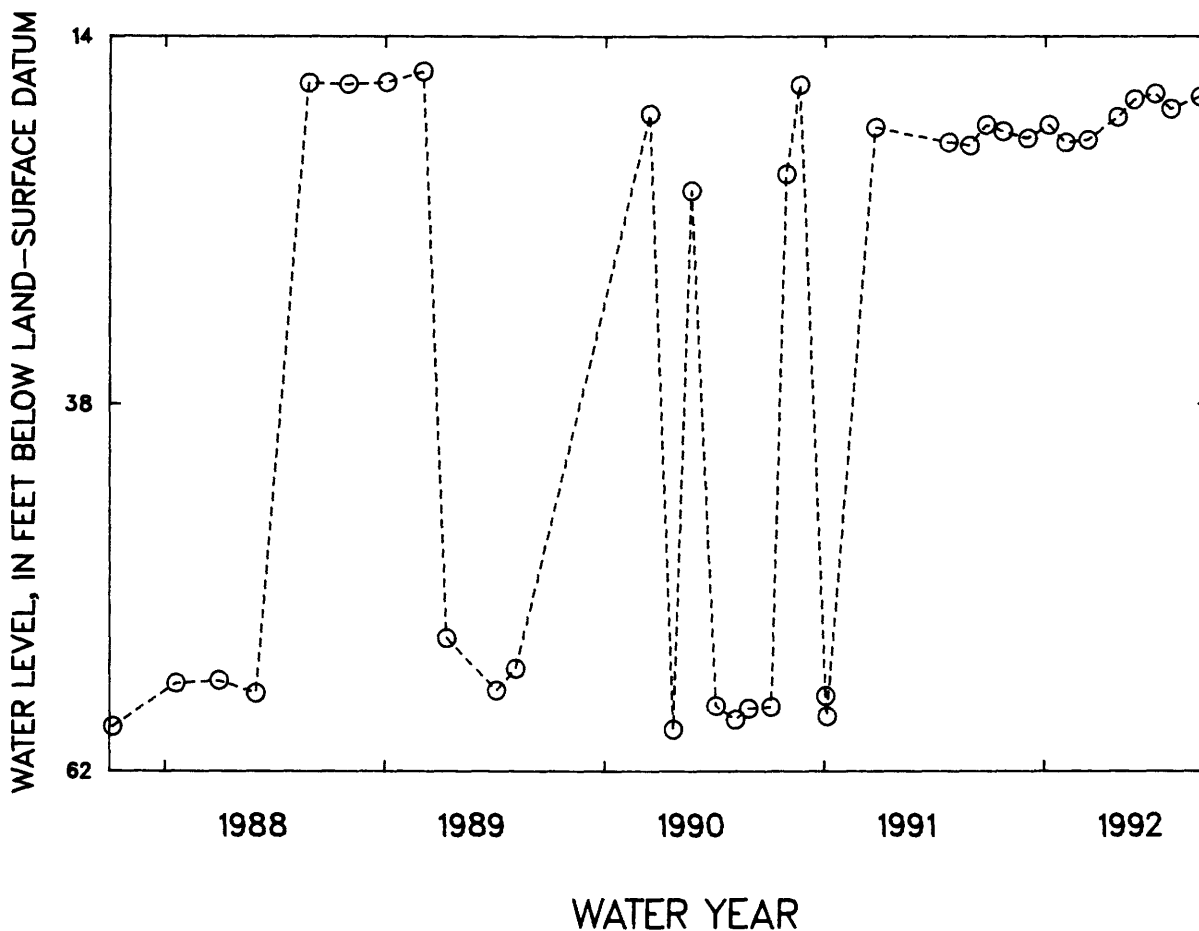
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.64 ft (4.77 m) below land-surface datum, Mar. 25, 1982; lowest water level measured, 59.26 ft (18.1 m) below land-surface datum, Apr. 25, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 23	20.22	Feb. 4	20.96	May 28	18.14	July 27	18.75
Dec. 3	20.70	Mar. 12	20.78	July 1	17.76	Sept. 14	17.95
Jan. 7	19.80	Apr. 30	19.29				

WATER YEAR 1992 HIGHEST 17.76 JULY 1, 1992 LOWEST 20.96 FEB. 4, 1992

a Pumping.



## GROUND-WATER LEVELS

557

## ST. CROIX, U.S. VIRGIN ISLANDS

174225064472000. Local number, 2.

LOCATION.--Lat 17°42'25", long 64°47'20", Hydrologic Unit 21020002, 0.90 mi southeast of the Experimental Station, 0.6 mi southwest of Christiansted Plaza, and 0.18 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64. Owner: U.S. Virgin Islands Government, Name: USGS-10, Fairplains 2 (FP2).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 20 ft (6.10 m) above mean sea level, from topographic map.

Measuring point: Top of 0.5 in (0.01 m) hole at concrete base wall, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well. Nearby pumping well.

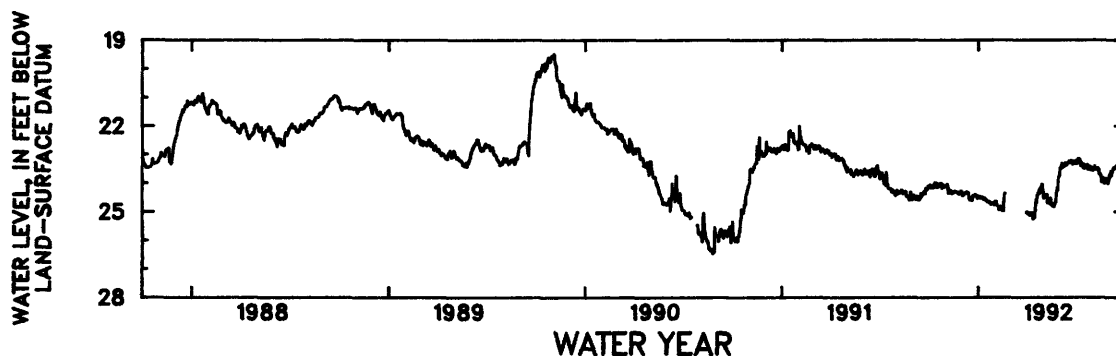
PERIOD OF RECORD.--June 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.45 ft (5.93 m) below land-surface datum, Nov. 4, 1989; lowest water level recorded, 26.46 ft (8.06 m) below land-surface datum, Aug. 25, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.11	24.10	24.34	24.46	24.63	---	25.07	24.53	23.46	23.32	23.46	23.79
2	24.09	24.08	24.44	24.51	24.73	---	25.05	24.49	23.50	23.24	23.46	23.69
3	24.07	24.07	24.43	24.50	24.64	---	25.07	24.47	23.30	23.30	23.40	23.58
4	24.16	24.05	24.41	24.48	24.79	---	25.08	24.42	23.45	23.14	23.52	23.73
5	24.15	24.17	24.40	24.51	24.80	---	25.13	24.48	23.42	23.17	23.46	23.62
6	24.12	24.36	24.38	24.53	24.83	---	25.03	24.45	23.45	23.17	23.52	23.57
7	24.16	24.35	24.34	24.51	24.93	---	25.09	24.40	23.39	23.31	23.52	23.50
8	24.12	24.31	24.35	24.50	24.84	---	25.10	24.70	23.31	23.25	23.48	23.46
9	24.09	24.30	24.32	24.51	24.92	---	25.09	24.62	23.42	23.40	23.47	23.50
10	24.07	24.26	24.31	24.56	24.81	---	25.05	24.64	23.30	23.33	23.51	23.49
11	24.15	24.28	24.32	24.55	24.83	---	25.26	24.66	23.38	23.40	23.51	23.48
12	23.98	24.36	24.38	24.57	24.83	---	25.06	24.72	23.38	23.35	23.69	23.40
13	24.07	24.34	24.35	24.54	24.96	---	25.22	24.57	23.35	23.35	23.70	23.39
14	24.01	24.33	24.52	24.58	24.90	---	25.14	24.52	23.32	23.49	23.67	23.37
15	24.00	24.34	24.58	24.59	24.89	---	24.95	24.76	23.29	23.48	23.76	23.40
16	24.14	24.33	24.59	24.63	24.97	---	24.69	24.72	23.24	23.48	23.97	23.32
17	24.15	24.31	24.56	24.65	24.53	---	24.58	24.80	23.29	23.39	23.93	23.28
18	24.13	24.29	24.51	24.65	24.38	---	24.67	24.77	23.24	23.47	23.85	23.21
19	24.11	24.30	24.51	24.64	24.36	---	24.40	24.78	23.23	23.41	23.82	23.40
20	24.07	24.32	24.62	24.65	---	---	24.41	24.82	23.30	23.36	23.95	23.48
21	24.02	24.32	24.53	24.65	---	---	24.34	24.74	23.22	23.44	24.02	23.47
22	24.01	24.32	24.43	24.72	---	---	24.31	24.70	23.28	23.52	23.87	23.53
23	24.04	24.35	24.46	24.69	---	---	24.21	24.65	23.35	23.51	23.96	23.53
24	24.02	24.37	24.46	24.75	---	---	24.35	24.44	23.33	23.46	23.96	23.57
25	24.19	24.33	24.43	24.71	---	---	24.16	24.28	23.23	23.44	23.83	23.64
26	24.10	24.38	24.40	24.71	---	---	24.22	24.17	23.31	23.43	23.96	23.61
27	24.07	24.34	24.42	24.70	---	---	24.09	24.26	23.28	23.55	23.88	23.67
28	24.10	24.32	24.45	24.73	---	---	24.04	23.96	23.26	23.54	24.02	23.56
29	24.14	24.29	24.46	24.74	---	---	24.23	23.79	23.32	23.46	23.93	23.66
30	24.11	24.29	24.54	24.77	---	25.03	24.32	23.75	23.21	23.47	23.88	23.67
31	24.11	---	24.52	24.77	---	25.01	---	23.59	---	23.56	23.70	---
MEAN	24.09	24.29	24.44	24.61	24.77	25.02	24.71	24.47	23.33	23.39	23.73	23.52

WTR YR 1992 MEAN 24.11 HIGHEST 23.10 JULY 4, 1992 LOWEST 25.26 APR. 11, 1992



## GROUND-WATER LEVELS

## ST. CROIX, U.S. VIRGIN ISLANDS

174243064475100. Local number, 3.

LOCATION.--Lat 17°42'43", long 64°47'51", Hydrologic Unit 21020002, 0.75 mi northwest of the Alexander Hamilton Airport entrance on Hwy 64, 6.45 mi southwest of Christiansted Plaza, and 0.57 mi southwest of the Experimental Station. Owner: U.S. Virgin Islands Government, Name: Golden Grove - 6 (PW6).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.20 m), cased 8 in (0.20 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map.

Measuring point: Upper edge of hole at 8 in (0.20 m) casing, 4.20 ft (1.28 m) above land-surface datum.

REMARKS.--Recording observation well.

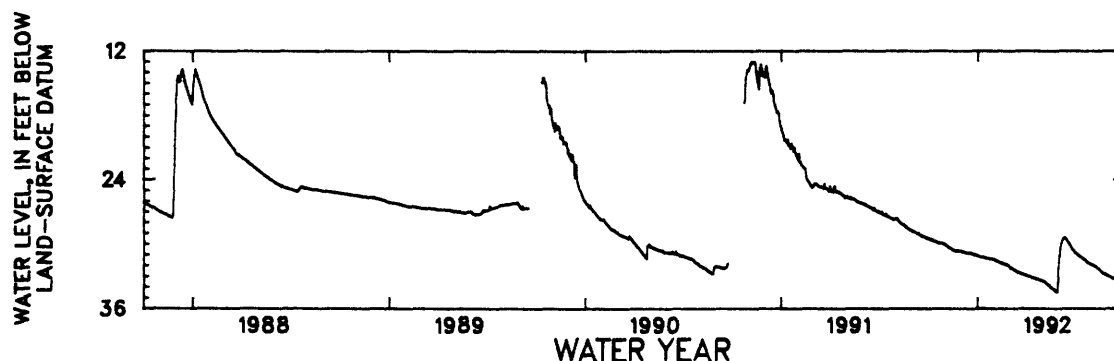
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 12.99 ft (3.96 m) below land-surface datum, Nov. 10, 1990; lowest water level recorded, 34.46 ft (10.5 m) below land-surface datum, May 27-28 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.51	30.07	30.69	31.13	31.49	32.19	32.92	33.47	30.93	30.85	31.94	33.01
2	29.52	30.11	30.71	31.14	31.52	32.23	32.95	33.49	30.55	30.88	31.97	33.05
3	29.54	30.14	30.72	31.15	31.55	32.24	32.98	33.51	30.21	30.93	31.99	33.08
4	29.56	30.19	30.73	31.17	31.57	32.27	32.99	33.53	29.97	30.97	32.01	33.11
5	29.57	30.22	30.75	31.19	31.59	32.30	33.01	33.59	29.78	31.01	32.05	33.14
6	29.60	30.25	30.77	31.21	31.61	32.34	33.03	33.63	29.64	31.05	32.07	33.17
7	29.63	30.30	30.79	31.22	31.63	32.37	33.05	33.67	29.52	31.09	32.10	33.18
8	29.66	30.32	30.81	31.23	31.65	32.39	33.08	33.71	29.46	31.13	32.12	33.19
9	29.69	30.35	30.83	31.24	31.67	32.41	33.10	33.73	29.42	31.16	32.16	33.20
10	29.70	30.39	30.83	31.23	31.69	32.44	33.11	33.78	29.42	31.19	32.20	33.22
11	29.72	30.42	30.83	31.24	31.72	32.48	33.13	33.83	29.44	31.23	32.26	33.23
12	29.75	30.44	30.84	31.26	31.75	32.51	33.14	33.86	29.47	31.27	32.30	33.24
13	29.76	30.46	30.84	31.28	31.77	32.54	33.16	33.89	29.52	31.31	32.33	33.25
14	29.79	30.50	30.83	31.29	31.78	32.57	33.17	33.96	29.61	31.33	32.38	33.26
15	29.81	30.54	30.85	31.30	31.79	32.59	33.18	33.99	29.70	31.37	32.41	33.28
16	29.83	30.57	30.85	31.32	31.81	32.65	33.20	34.05	29.76	31.42	32.46	33.30
17	29.85	30.59	30.83	31.33	31.82	32.68	33.23	34.09	29.85	31.46	32.52	33.32
18	29.87	30.62	30.84	31.34	31.84	32.70	33.25	34.14	29.93	31.49	32.56	33.34
19	29.89	30.64	30.86	31.35	31.87	32.71	33.26	34.17	30.00	31.52	32.60	33.36
20	29.91	30.66	30.88	31.37	31.86	32.73	33.26	34.19	30.08	31.54	32.67	33.38
21	29.92	30.65	30.90	31.39	31.87	32.74	33.28	34.23	30.19	31.63	32.70	33.40
22	29.92	30.64	30.92	31.40	31.89	32.77	33.31	34.30	30.27	31.68	32.72	33.41
23	29.92	30.64	30.93	31.40	31.90	32.78	33.32	34.33	30.33	31.72	32.75	33.43
24	29.93	30.64	30.96	31.40	31.92	32.80	33.34	34.39	30.44	31.74	32.77	33.45
25	29.93	30.65	30.98	31.41	31.96	32.82	33.36	34.42	30.51	31.76	32.79	33.47
26	29.94	30.66	31.01	31.41	32.01	32.85	33.37	34.44	30.56	31.79	32.85	33.49
27	29.95	30.67	31.02	31.42	32.02	32.86	33.39	34.45	30.62	31.81	32.88	33.52
28	29.98	30.66	31.04	31.42	32.11	32.88	33.41	34.45	30.70	31.85	32.91	33.54
29	30.00	30.67	31.06	31.43	32.14	32.91	33.43	33.45	30.77	31.87	32.94	33.57
30	30.02	30.68	31.08	31.44	---	32.92	33.45	32.31	30.81	31.90	32.96	33.57
31	30.03	---	31.11	31.46	---	32.89	---	31.53	---	31.92	32.97	---
MEAN	29.80	30.48	30.87	31.31	31.79	32.60	33.20	33.83	30.05	31.42	32.46	33.31

WTR YR 1992 MEAN 31.76 HIGHEST 29.39 JUNE 10, 1992 LOWEST 34.46 MAY 27-28, 1992



## GROUND-WATER LEVELS

559

## ST. CROIX, U.S. VIRGIN ISLANDS

174245064475800. Local number, 4.

LOCATION.--Lat 17°42'45", long 64°47'58", Hydrologic Unit 21020002, 5.40 mi east of Fort Frederick at Frederickstead, 0.80 mi northeast of Envy, and 1.52 mi southeast of Holy Cross Church. Owner: U.S. Virgin Islands Government, Name: Golden Grove - 1 (PW1).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Observation drilled production water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m), 0-104 ft (0-31.70 m), perforated 64-104 ft (19.51-31.70 m). Depth 104 ft (31.70 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map. Measuring point: Lower edge of 1 in. (0.02 m) pipe at pump base, 3.40 ft (1.04 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

PERIOD OF RECORD.--January 1983 to current year.

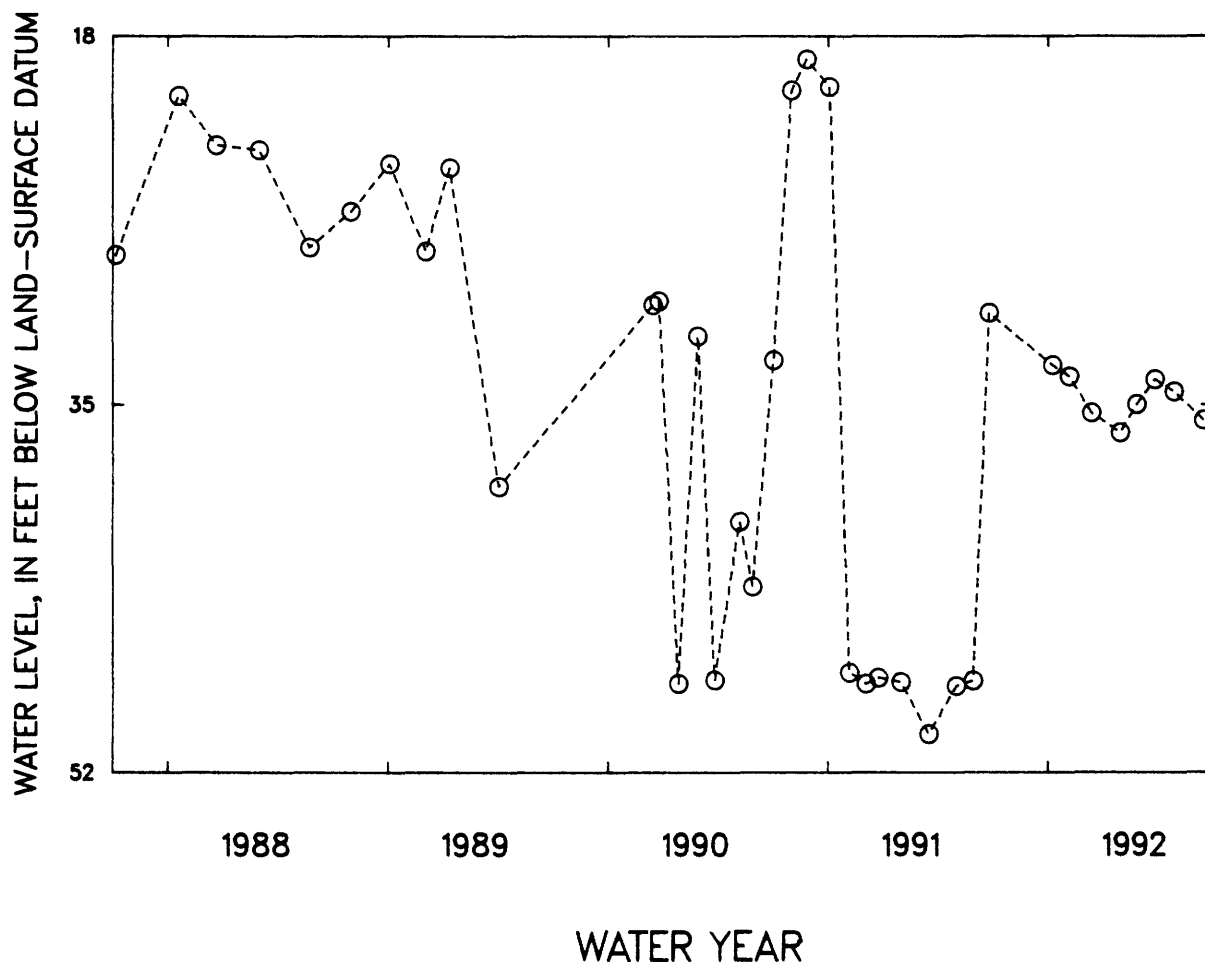
EXTREMES FOR PERIOD OF RECORD: Highest water level measured, 19.08 ft (5.81 m) below land-surface datum, Nov. 26, 1990; lowest water level measured, 58.30 ft (17.77 m) below land-surface datum, September 27, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 8	33.20	Mar. 13	35.38	May 27	34.99	July 28	34.41
Feb. 5	33.72	Apr. 30	36.30	June 26	33.85	Sept. 15	35.72

WATER YEAR 1992      HIGHEST 33.20 JAN. 8, 1992      LOWEST 58.30 SEPT. 15, 1992

a Pumping.



## GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174303064484400. Local number, 6.

LOCATION.--Lat 17°43'03", long 64°48'44", Hydrologic Unit 21020002, 4.95 mi northeast of Fort Frederick at Frederickstead, 1.10 mi southwest of Holy Cross Church, and 0.40 mi northwest of Adventure ruins. Owner: U.S. Virgin Islands Government, Name: Adventure 28.

AQUIFER.--Alluvium of Pleistocene age and marl of Oligocene age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m). Depth 97 ft (29.6 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 80 ft (24.39 m) above mean sea level, from topographic map.

Measuring point: Upper edge of hole at 4 in (0.10 m) casing, 2.00 ft (0.61 m) above land-surface datum. Prior June 20, 1983, top of 4 in (0.10 m) casing, 0.90 ft (0.27 m) above land-surface datum.

REMARKS.--Recording observation well.

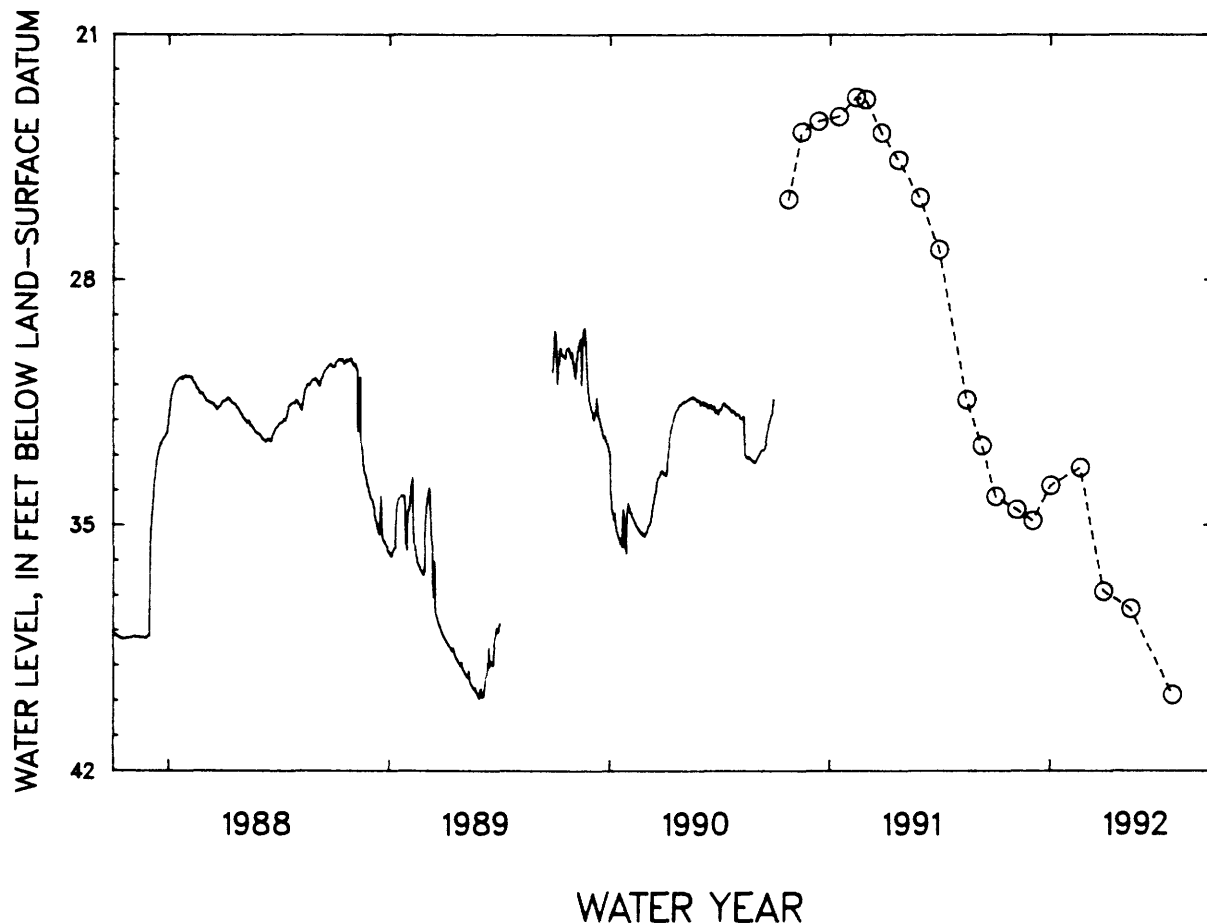
PERIOD OF RECORD.--August 1973 to March 1974, discontinued. March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.80 ft (6.95 m) below land-surface datum, Feb. 13, 1991; lowest water level recorded, 40.18 ft (12.25 m) below land-surface datum, Aug. 5, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 3	34.18	Dec. 4	34.88	Feb. 20	33.36	May 14	37.39
Nov. 7	34.56	Jan. 2	33.87	Mar. 30	36.89	July 22	39.84

WATER YEAR 1992      HIGHEST 33.36 FEB. 20, 1992      LOWEST 39.84 JULY 22, 1992



## GROUND-WATER LEVELS

561

## ST. CROIX, U.S. VIRGIN ISLANDS

174525064460600. Local number, 7.

LOCATION.--Lat 17°45'25", long 64°46'06", Hydrologic Unit 21020002, 4.35 mi northwest of Christiansted Plaza, 4.25 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64, and 0.45 mi southeast of Windsor Ruins. Owner: U.S. Virgin Islands Government, Name: Concordia 14.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Observation drilled production water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 85 ft (25.91 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map. Measuring point: Top of 0.50 in (0.01 m) pipe on top of pump concrete base, 2.30 ft (0.70 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumpage.

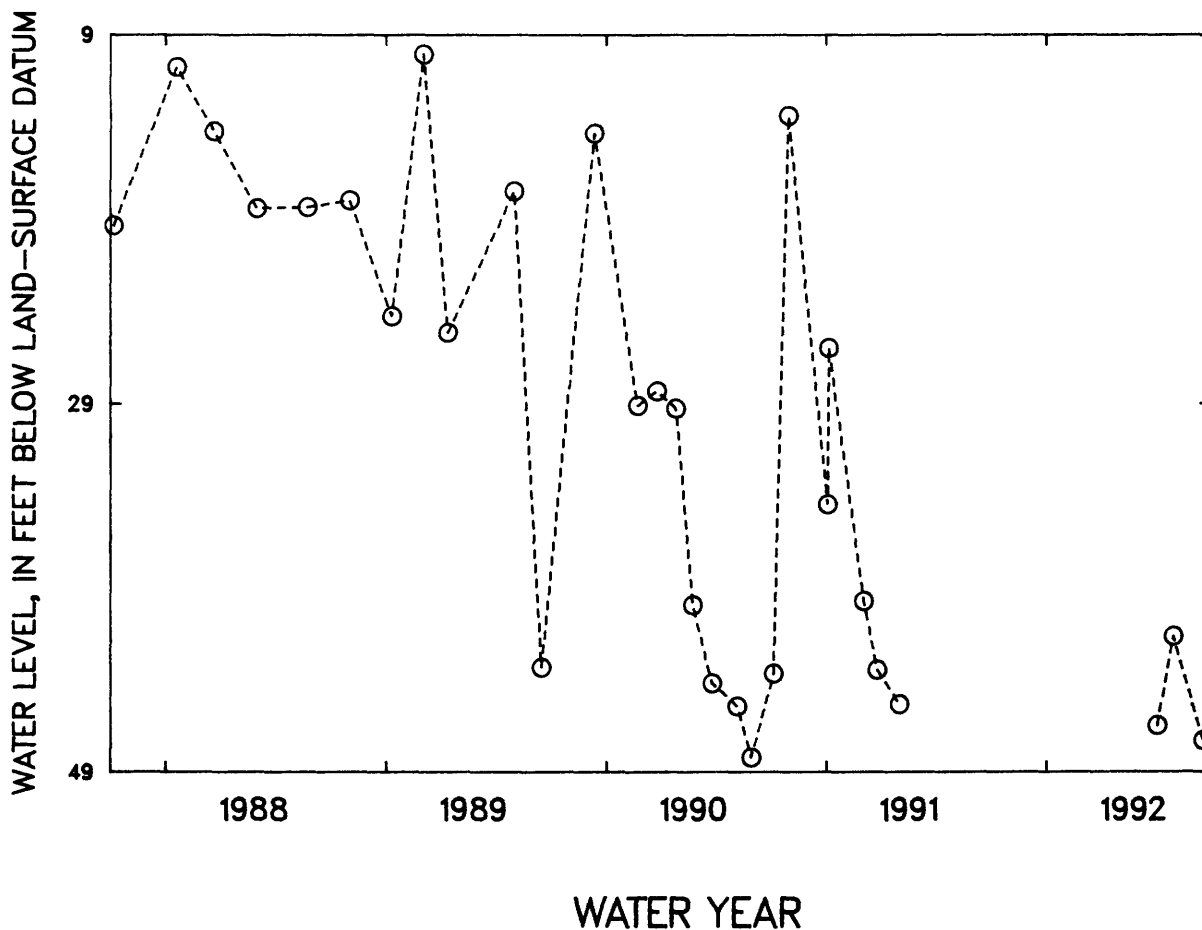
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.07 ft (3.07 m) below land-surface datum, Mar. 4, 1989; lowest water level measured, a48.20 ft (a14.7 m) below land-surface datum, Aug. 24, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level
July 2	a46.46	July 29	a41.61	Sept. 16	a47.28
WATER YEAR 1992    HIGHEST    a41.61    JULY 29, 1992    LOWEST    a47.28    SEPT. 16, 1992					

a Pumping.



## GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174527064460100. Local number, 8.

LOCATION.--Lat 17°45'27", long 64°46'01", Hydrologic Unit 21020002, 4.35 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64, 4.15 mi northwest of Christiansted Plaza, and 0.50 mi southeast of Windsor Ruins. Owner: U.S. Virgin Islands Government, Name: Concordia 1 (Main pump house).

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Observation drilled production water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 82 ft (25.0 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map. Measuring point: Top of 6 in (0.15 m) casing, 2.20 ft (0.67 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumpage.

PERIOD OF RECORD.--March 1982 to current year.

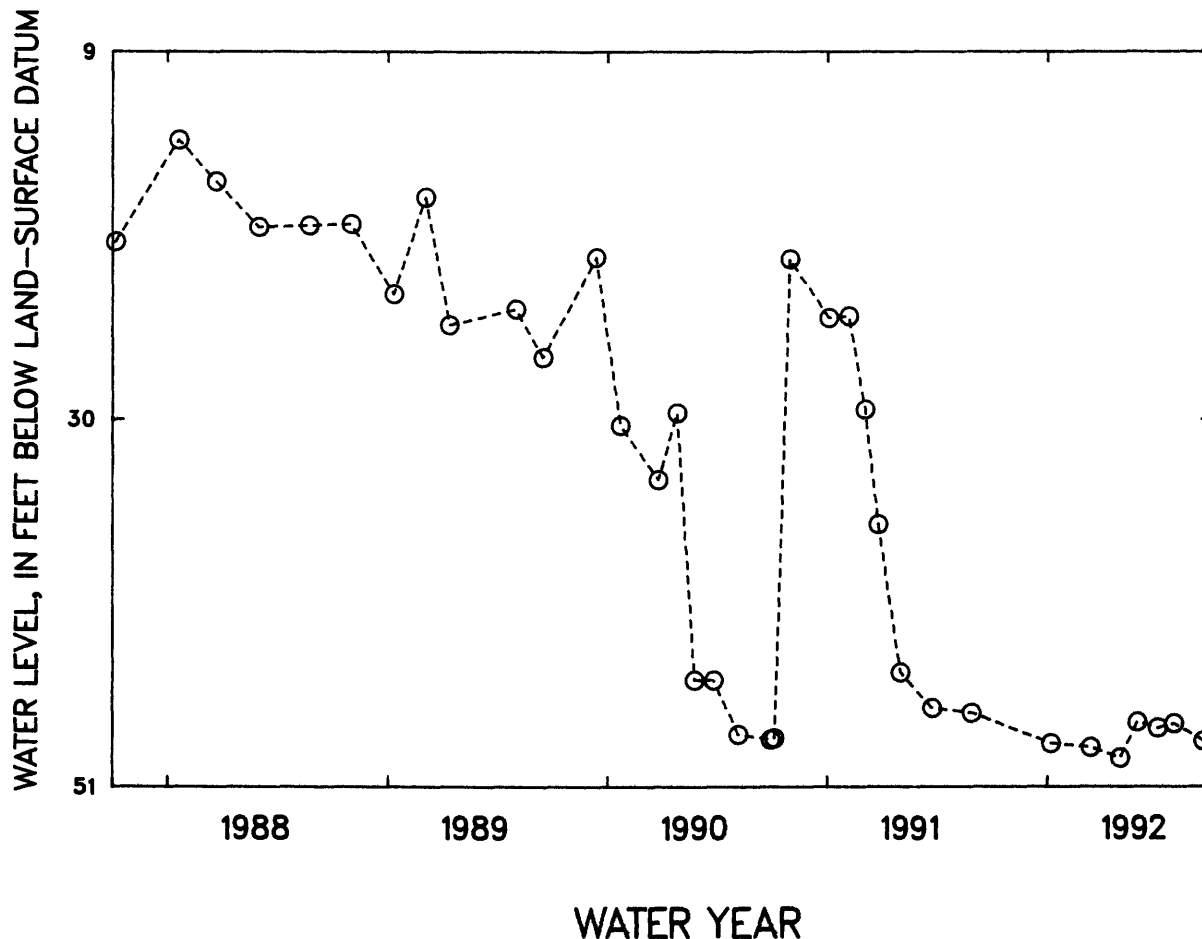
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.03 ft (4.28 m) below land-surface datum, Jan. 19, 1988; lowest water level measured, a49.34 ft (a15.4 m) below land-surface datum, May 4, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	a48.52	May 1	a49.34	July 2	a47.63	Sept. 16	a48.37
Mar. 13	a48.74	May 29	a47.29	July 29	a47.38		

WATER YEAR 1992 HIGHEST a47.29 MAY 29, 1992 LOWEST a49.34 MAY 1, 1992

a Pumping.





## ST. CROIX, U.S. VIRGIN ISLANDS

174532064460300. Local number, 9.

LOCATION.--Lat 17°45'32", long 64°46'03", Hydrologic Unit 21020002, 4.20 mi northwest of Christiansted Plaza, 4.32 mi northeast of Alexander Hamilton Airport entrance on Hwy 64, and 0.40 mi southeast of Windsor Ruins. Owner: U.S. Virgin Islands Government, Name: Concordia 7.

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Observation drilled production water-table well, diameter 6 in (0.15 m), cased 0-81 ft (0-24.7 m). Depth 81 ft (24.7 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 35 ft (10.7 m) above mean sea level, from topographic map. Measuring point: Hole in pump base, 2.20 ft (0.67 m) above land-surface datum. Previous to Mar. 25, 1982, hole in pump base 2.50 ft (0.76 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

PERIOD OF RECORD.--June 1962 to October 1968, discontinued. March 1982 to current year.

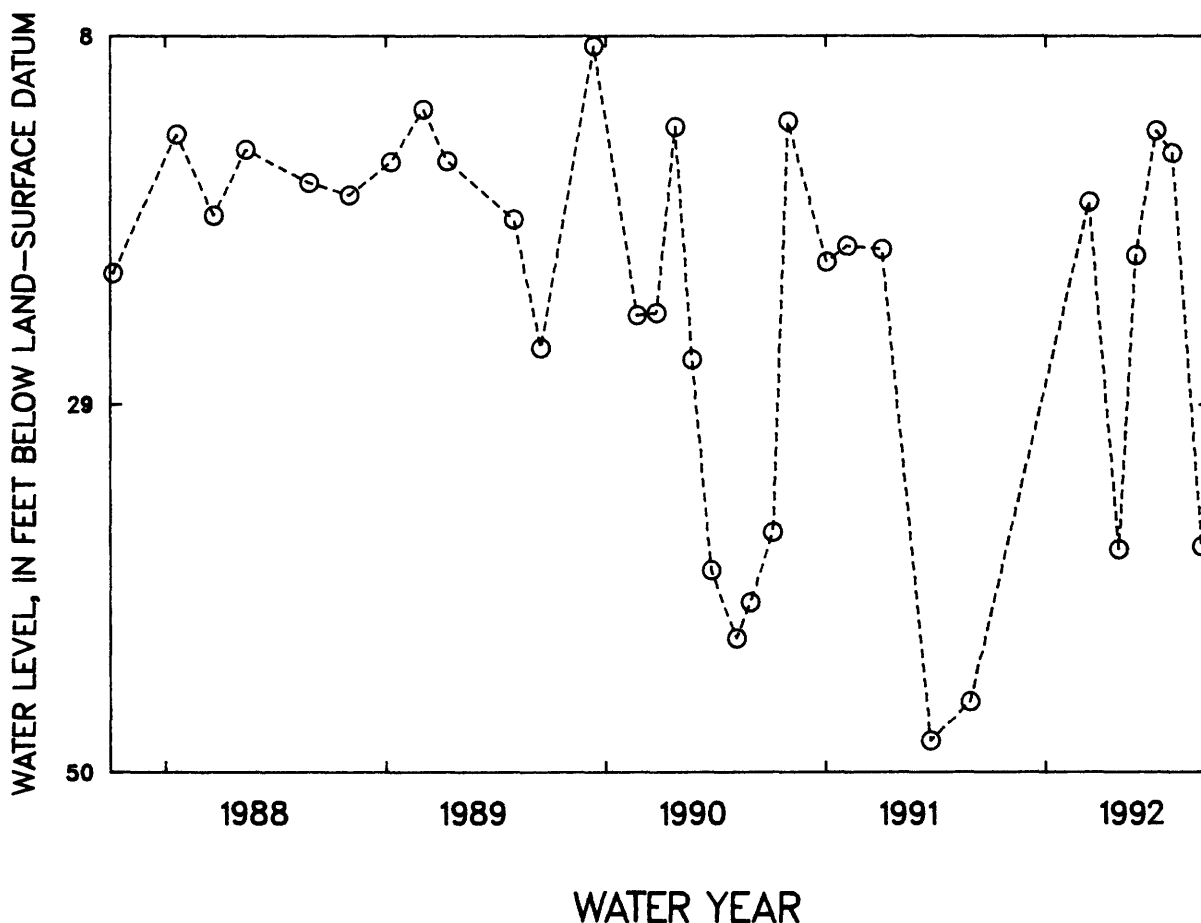
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.75 ft (0.53 m) below land-surface datum, May 11, 1966; lowest water level measured, 57.40 ft (17.5 m) below land-surface datum, Mar. 5, 1964.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Mar. 13	17.47	May 29	a20.51	July 29	14.70	Sept. 16	a37.10
May 1	a37.26	July 2	13.40				

WATER YEAR 1992 HIGHEST 13.40 JULY 2, 1992 LOWEST a37.26 MAY 1, 1992

a Pumping.



## GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174329064454700. Local number, 10.

LOCATION.--Lat 17°43'29", long 64°45'47", Hydrologic Unit 21020002, 4.05 mi southwest of Christiansted plaza, 2.40 mi northeast of the Experimental Station, and 2.75 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64.  
 Owner: U.S. Virgin Islands Government, Name: Barren Spot 5 (PWD-5).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled production water-table well, diameter 6 in (0.15 m), cased 0-130 ft (0-39.63 m), perforated 71-130 ft (21.64-39.63 m). Depth 130 ft (39.63 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 75 ft (22.86 m) above mean sea level, from topographic map.  
 Measuring point: Hole on top of pump base, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

PERIOD OF RECORD.--March 1982 to current year.

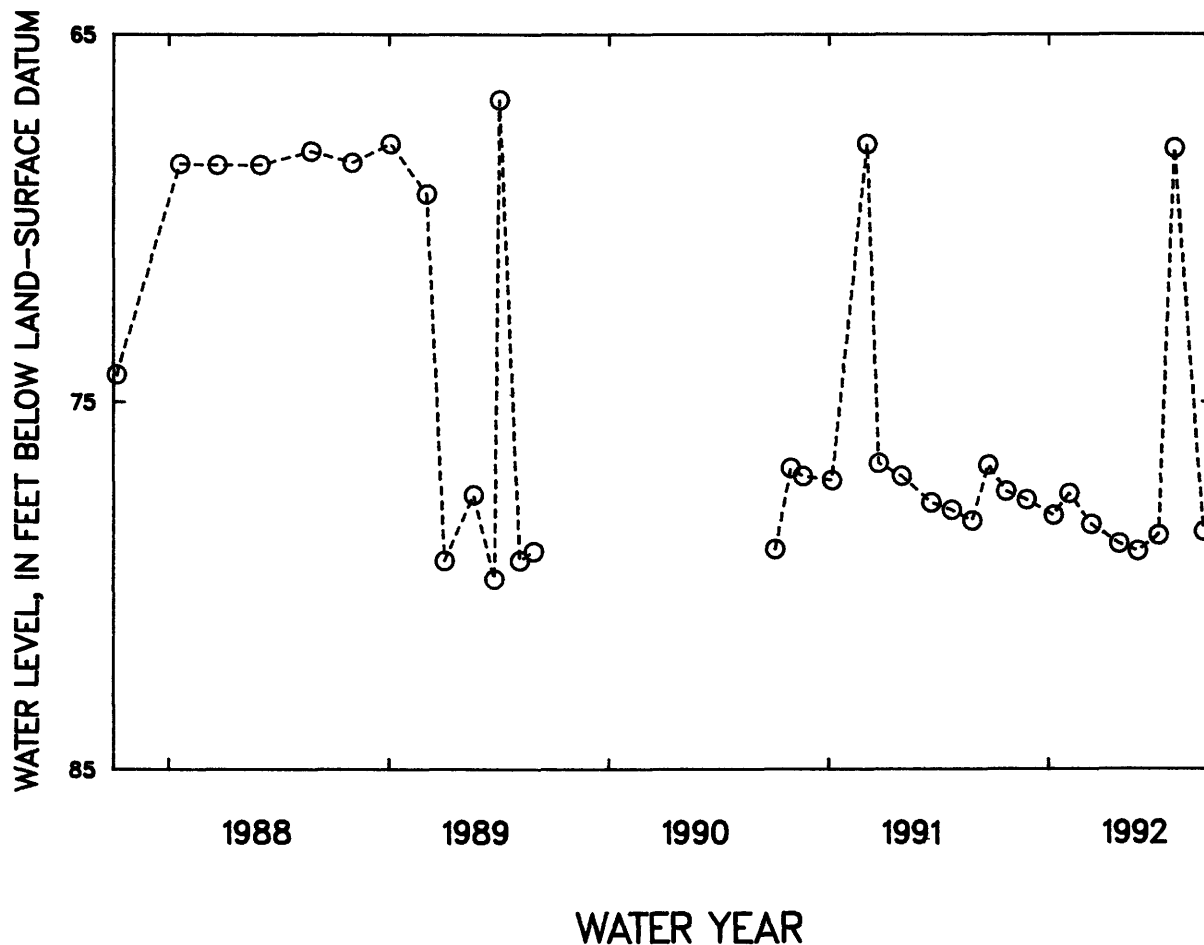
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 61.86 ft (18.86 m) below land-surface datum, Mar. 26, 1982; lowest water level measured, a79.81 ft (a24.33 m) below land-surface datum, June 25, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
 INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 22	a77.43	Feb. 4	a77.49	May 28	a79.05	July 27	68.10
Nov. 25	a77.66	Mar. 12	a78.33	July 1	a78.62	Sept. 14	a78.52
Jan. 9	a78.08	Apr. 27	a78.85				

WATER YEAR 1992 HIGHEST 68.10 JULY 27, 1992 LOWEST a79.05 MAY 28, 1992

a Pumping.



## GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174303064481100. Local number, 11.

LOCATION.--Lat 17°43'03", long 64°18'11", Hydrologic Unit 21020002, 5.20 mi east of Fort Frederick at Frederickstead, 1.20 mi southeast of Holy Cross Church, and 0.45 mi northeast of Adventure Ruins. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA-02 at Adventure well field.

AQUIFER.--Alluvium and Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-60 ft (0-18.3 m), screened 20-40 ft (6.09-12.2 m). Open hole 60-100 ft (18.3-30.5 m). Depth 100 ft (30.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 50 ft (15.2 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Recording observation well.

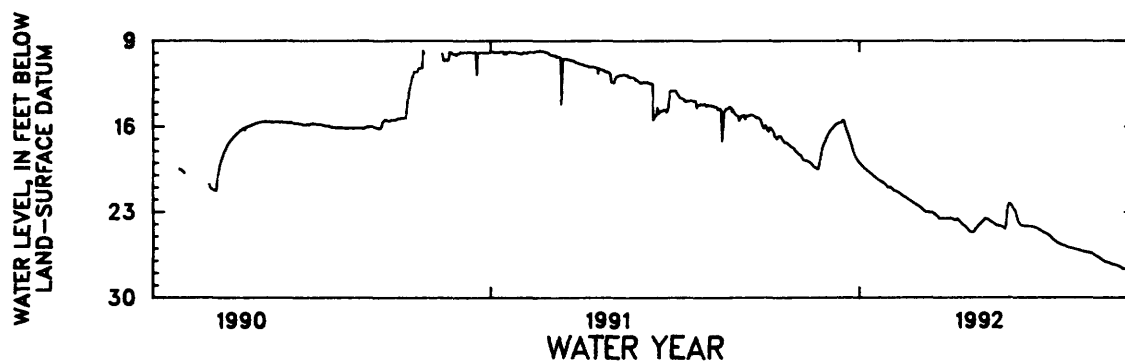
PERIOD OF RECORD.--February 27, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.75 ft (2.97 m) below land-surface datum, Oct. 26-27, 1990; lowest water level recorded, 27.68 ft (8.44 m) below land-surface datum, Sept. 19-23, 1992

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.14	18.19	16.57	18.95	20.96	22.61	23.53	23.82	22.67	24.66	26.04	27.09
2	16.27	18.25	16.43	19.06	21.02	22.67	23.57	23.72	22.79	24.70	26.07	27.11
3	16.40	18.31	16.31	19.16	21.12	22.78	23.61	23.66	22.89	24.74	26.09	27.14
4	16.09	18.38	16.21	19.24	21.25	22.83	23.65	23.56	23.16	24.78	26.11	27.16
5	16.12	18.51	16.16	19.34	21.25	22.90	23.68	23.53	23.51	24.83	26.14	27.20
6	16.22	18.69	16.04	19.44	21.28	22.97	23.63	23.56	23.77	24.90	26.16	27.24
7	16.30	18.76	15.93	19.49	21.33	23.01	23.57	23.61	23.93	24.95	26.18	27.27
8	16.45	18.78	15.85	19.56	21.36	23.00	23.65	23.68	24.01	25.02	26.20	27.29
9	16.81	18.77	15.78	19.63	21.41	23.00	23.76	23.74	24.09	25.13	26.22	27.30
10	16.82	18.81	15.75	19.69	21.46	23.04	23.85	23.80	24.12	25.21	26.25	27.33
11	16.98	18.85	15.71	19.77	21.53	23.03	23.92	23.83	24.14	25.29	26.26	27.34
12	16.84	18.90	15.67	19.84	21.59	23.03	24.01	23.87	24.16	25.36	26.28	27.37
13	16.77	18.96	15.68	19.88	21.67	23.05	24.08	23.94	24.17	25.42	26.30	27.41
14	16.76	19.04	15.64	19.97	21.73	23.07	24.14	24.01	24.17	25.48	26.32	27.45
15	16.77	19.11	15.51	20.04	21.78	23.12	24.21	24.07	24.17	25.53	26.34	27.50
16	16.92	19.26	15.46	20.13	21.82	23.17	24.30	24.11	24.18	25.56	26.35	27.55
17	17.09	19.33	15.65	20.19	21.88	23.24	24.41	24.13	24.19	25.60	26.37	27.60
18	17.21	19.37	16.05	20.25	21.94	23.32	24.52	24.13	24.19	25.66	26.40	27.64
19	17.29	19.43	16.29	20.31	22.03	23.43	24.61	24.15	24.20	25.69	26.43	27.67
20	17.29	19.50	16.50	20.37	22.06	23.51	24.64	24.18	24.21	25.72	26.48	27.68
21	17.32	19.46	16.72	20.42	22.11	23.53	24.65	24.23	24.24	25.75	26.53	27.68
22	17.38	19.12	16.92	20.47	22.17	23.54	24.67	24.27	24.27	25.76	26.58	27.68
23	17.47	18.64	17.19	20.49	22.22	23.54	24.59	24.33	24.30	25.80	26.63	27.67
24	17.53	18.20	17.54	20.55	22.28	23.53	24.47	24.40	24.33	25.85	26.68	27.65
25	17.61	17.78	17.84	20.61	22.34	23.53	24.34	24.01	24.36	25.89	26.73	27.61
26	17.68	17.50	18.09	20.67	22.40	23.53	24.25	22.97	24.40	25.91	26.79	27.49
27	17.71	17.32	18.29	20.74	22.45	23.53	24.16	22.46	24.46	25.93	26.86	27.33
28	17.78	17.12	18.45	20.81	22.50	23.53	24.07	22.31	24.50	25.95	26.91	27.19
29	17.92	16.93	18.60	20.96	22.55	23.53	23.99	22.32	24.54	25.97	26.97	27.09
30	18.03	16.76	18.74	20.98	---	23.56	23.90	22.43	24.60	25.99	27.03	27.03
31	18.08	---	18.85	20.97	---	23.49	---	22.54	---	26.01	27.07	---
MEAN	17.03	18.53	16.66	20.06	21.78	23.21	24.08	23.66	24.02	25.45	26.44	27.39

WTR YR 1992 MEAN 22.35 HIGHEST 15.42 DEC. 17, 1991 LOWEST 27.68 SEPT. 19-23, 1992



## GROUND-WATER LEVELS

## ST. CROIX, U.S. VIRGIN ISLANDS

174308064492800. Local number, 12.

LOCATION.--Lat 17°43'08", long 64°48'28", Hydrologic Unit 21020002, 4.95 mi east of Fort Frederick at Frederickstead, 1.10 mi south of Holy Cross Church, and 0.40 mi northeast of Adventure Ruins. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA-03 at Adventure well field.

AQUIFER.--Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-110 ft (0-33.5 m), screened 50-90 ft (15.2-27.4 m). Depth 110 ft (33.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 60 ft (18.3 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well.

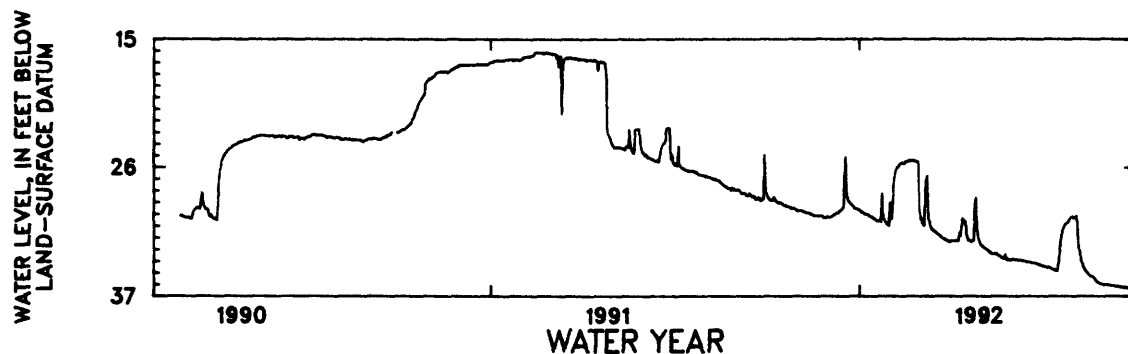
PERIOD OF RECORD.--February 28, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 16.13 ft (4.92 m) below land-surface datum, Feb. 25, 1991; lowest water level recorded, 36.39 ft (11.1 m) below land-surface datum, Sept. 30, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.26	29.71	30.20	29.62	29.93	30.04	32.23	32.63	33.82	34.39	30.28	36.02
2	28.47	29.68	30.24	29.67	30.44	30.42	32.23	32.72	33.82	34.44	30.21	36.04
3	28.62	29.65	30.23	29.80	28.44	30.69	32.23	32.78	33.84	34.46	30.15	36.05
4	28.75	29.65	30.20	29.81	27.03	30.89	32.23	32.86	33.83	34.47	31.73	36.06
5	28.79	29.70	30.14	29.85	26.49	30.95	32.23	32.92	33.82	34.50	32.70	36.07
6	28.82	29.69	30.07	29.92	26.13	28.37	32.23	32.96	33.89	34.54	33.26	36.09
7	28.79	29.79	29.99	29.96	25.93	27.06	32.23	33.02	33.92	34.56	33.74	36.10
8	28.50	29.81	29.97	29.99	25.93	26.65	32.23	33.14	33.92	34.57	34.07	36.11
9	28.63	29.81	29.88	30.00	25.78	29.81	31.49	33.22	33.93	34.62	34.30	36.12
10	28.80	29.86	29.83	30.03	25.65	30.55	31.79	33.28	33.96	34.68	34.52	36.13
11	28.89	29.86	29.86	30.14	25.63	30.98	30.88	33.34	33.99	34.72	34.68	36.15
12	28.96	29.87	29.72	30.17	25.55	31.15	30.32	33.38	33.99	34.76	34.82	36.16
13	29.03	29.90	29.68	30.19	25.57	31.28	30.59	33.37	34.00	34.77	34.92	36.17
14	29.02	29.96	29.62	30.25	25.67	31.36	30.51	33.32	34.02	34.81	35.02	36.18
15	29.00	29.96	29.48	30.32	25.58	31.43	30.92	33.34	34.06	34.83	35.10	36.20
16	29.03	30.01	29.33	30.40	25.50	31.51	31.69	33.41	34.07	34.11	35.21	36.21
17	29.13	30.09	26.69	30.43	25.50	31.56	32.05	33.46	34.06	33.08	35.27	36.22
18	29.19	30.09	25.04	30.54	25.44	31.64	32.25	33.52	34.06	32.30	35.31	36.23
19	29.23	30.09	28.02	30.56	25.40	31.71	32.23	33.56	34.11	31.72	35.32	36.24
20	29.21	30.09	28.65	30.58	25.36	31.76	32.23	33.63	34.14	31.28	35.34	36.26
21	29.30	30.11	28.87	30.60	25.43	31.82	32.31	33.68	34.15	31.03	35.56	36.27
22	29.28	30.12	28.99	30.63	25.36	31.92	32.22	33.72	34.16	30.84	35.67	36.28
23	29.31	30.14	29.05	28.18	25.39	31.97	32.22	33.76	34.17	30.74	35.75	36.29
24	29.36	30.15	29.19	29.87	25.42	32.03	29.06	33.38	34.20	30.71	35.81	36.31
25	29.40	30.15	29.25	30.36	25.44	32.07	28.53	33.71	34.23	30.63	35.88	36.32
26	29.51	30.20	29.30	30.55	25.45	32.15	30.85	33.84	34.26	30.50	35.91	36.33
27	29.49	30.29	29.46	30.73	25.47	32.19	31.71	33.86	34.31	30.38	35.96	36.34
28	29.47	30.32	29.48	30.82	25.51	32.24	32.11	33.86	34.32	30.28	35.97	36.36
29	29.51	30.27	29.51	30.90	29.35	32.27	32.35	33.88	34.35	30.20	35.99	36.37
30	29.54	30.23	29.55	30.93	---	32.33	32.50	33.86	34.38	30.18	36.00	36.38
31	29.69	---	29.59	28.95	---	32.32	---	33.84	---	30.27	36.01	---
MEAN	29.06	29.97	29.33	30.15	26.20	31.07	31.62	33.40	34.06	32.82	34.53	36.20

WTR YR 1992 MEAN 31.55 HIGHEST 24.85 DEC. 18, 1991 LOWEST 36.39 SEPT. 30, 1992



## GROUND-WATER LEVELS

567

## ST. CROIX, U.S. VIRGIN ISLANDS

174316064480800. Local number, 13.

LOCATION.--Lat 17°43'16", long 64°48'08", Hydrologic Unit 21020002, 5.25 mi east of Fort Frederick at Frederickstead, 0.95 mi southeast of Holy Cross Church, and 0.65 mi northeast of Adventure Ruins. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA-17 at Adventure well field.

AQUIFER.--Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-95 ft (0-29.0 m), screened 10-40 ft (3.05-12.2 m). Depth 95 ft (29.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 75 ft (22.9 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.33 ft (0.71 m) above land-surface datum.

REMARKS.--Recording observation well.

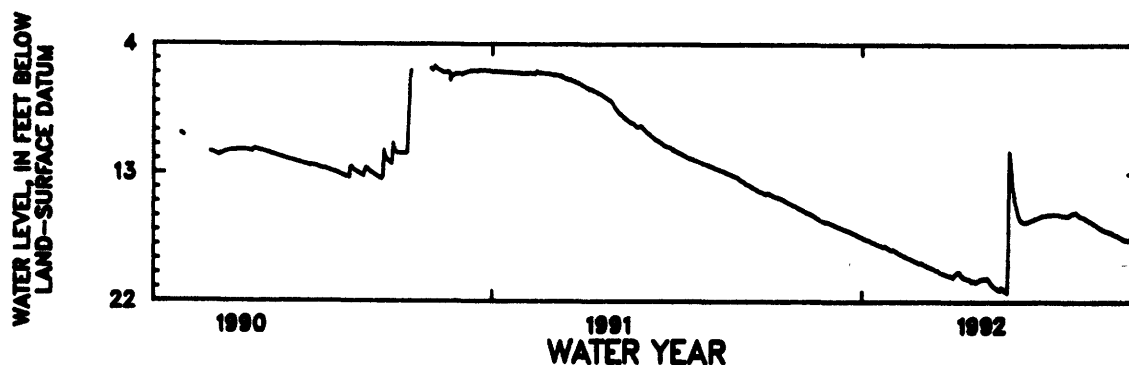
PERIOD OF RECORD.--February 28, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.68 ft (1.43 m) below land-surface datum, Oct. 14 1990; lowest water level recorded, 21.36 ft (6.51 m) below land-surface datum, May 23, 1992

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.42	15.50	16.51	17.48	18.32	19.33	20.17	20.35	15.25	15.98	15.83	17.09
2	14.48	15.53	16.53	17.54	18.39	19.37	20.07	20.35	15.53	15.88	15.90	17.12
3	14.54	15.57	16.56	17.56	18.44	19.41	19.99	20.35	15.86	15.06	15.94	17.13
4	14.54	15.61	16.60	17.59	18.48	19.44	19.92	20.35	16.08	15.85	15.99	17.17
5	14.58	15.64	16.64	17.63	18.52	19.48	19.88	20.44	16.21	15.84	16.01	17.20
6	14.62	15.68	16.67	17.63	18.56	19.51	19.90	20.60	16.30	15.84	16.01	17.23
7	14.65	15.72	16.70	17.66	18.61	19.54	20.04	20.68	16.35	15.84	16.05	17.26
8	14.68	15.76	16.73	17.70	18.65	19.58	20.14	20.75	16.39	15.83	16.18	17.30
9	14.68	15.78	16.76	17.73	18.68	19.60	20.22	20.83	16.42	15.83	16.14	17.33
10	14.70	15.81	16.78	17.77	18.72	19.64	20.25	20.89	16.42	15.84	16.18	17.37
11	14.73	15.84	16.82	17.80	18.76	19.66	20.31	20.95	16.48	15.84	16.23	17.41
12	14.75	15.87	16.85	17.84	18.80	19.70	20.34	21.01	16.38	15.85	16.27	17.46
13	14.78	15.92	16.89	17.87	18.83	19.74	20.35	21.06	16.35	15.86	16.31	17.50
14	14.83	15.96	16.92	17.90	18.87	19.78	20.36	21.10	16.32	15.88	16.35	17.53
15	14.86	16.02	16.95	17.93	18.89	19.81	20.38	21.15	16.29	15.88	16.39	17.59
16	14.89	16.06	16.98	17.96	18.93	19.85	20.42	21.19	16.26	15.89	16.44	17.60
17	14.93	16.11	16.99	17.99	18.96	19.88	20.47	20.96	16.23	15.91	16.58	17.62
18	14.97	16.15	17.02	18.03	18.99	19.92	20.53	21.01	16.28	15.91	16.54	17.64
19	15.02	16.20	17.05	18.05	19.02	19.94	20.59	21.13	16.17	15.92	16.59	17.66
20	15.06	16.24	17.08	18.08	19.06	19.97	20.49	21.20	16.14	15.92	16.64	17.66
21	15.09	16.28	17.12	18.12	19.08	20.00	20.53	21.24	16.12	15.93	16.69	17.59
22	15.13	16.30	17.14	18.15	19.13	20.02	20.60	21.28	16.09	15.94	16.74	17.60
23	15.16	16.33	17.17	18.11	19.16	20.04	20.59	21.33	16.06	15.93	16.78	17.58
24	15.19	16.36	17.21	18.09	19.18	20.07	20.54	19.54	16.03	15.87	16.84	17.54
25	15.23	16.38	17.24	18.17	19.23	20.10	20.48	11.43	16.01	15.82	16.89	17.61
26	15.26	16.42	17.27	18.20	19.26	20.14	20.44	12.01	15.97	15.78	16.93	17.66
27	15.29	16.38	17.30	18.25	19.27	20.15	20.41	12.80	15.94	15.75	16.95	17.71
28	15.33	16.41	17.34	18.29	19.25	20.16	20.39	13.69	15.93	15.73	16.99	17.74
29	15.37	16.45	17.37	18.33	19.29	20.19	20.37	14.30	15.92	15.71	17.01	17.77
30	15.42	16.48	17.41	18.38	---	20.22	20.36	14.69	15.91	15.70	17.03	17.77
31	15.46	---	17.45	18.37	---	20.24	---	15.00	---	15.75	17.07	---
MEAN	14.92	16.03	16.97	17.94	18.87	19.82	20.32	19.15	16.12	15.85	16.46	17.48

WTR YR 1992 MEAN 17.49 HIGHEST 11.15 MAY 25, 1992 LOWEST 21.36 MAY 23, 1992



## ST. CROIX, U.S. VIRGIN ISLANDS

174247064475701. Local number, 14.

LOCATION.--Lat 17°42'47", long 64°47'57", Hydrologic Unit 21020002, 0.80 mi northwest of the Alexander Hamilton Airport entrance on Hwy 64, 0.53 mi south of the Experimental Station, and 6.65 mi southwest of Christiansted Plaza. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA-21a at Golden Grove well field.

AQUIFER.--Alluvial, Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-70 ft (0-21.3 m), screened 15-70 ft (4.57-21.3 m). Depth 100 ft (30.5 m), well collapsed to 70 ft (21.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 52 ft (15.8 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.25 ft (0.99 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

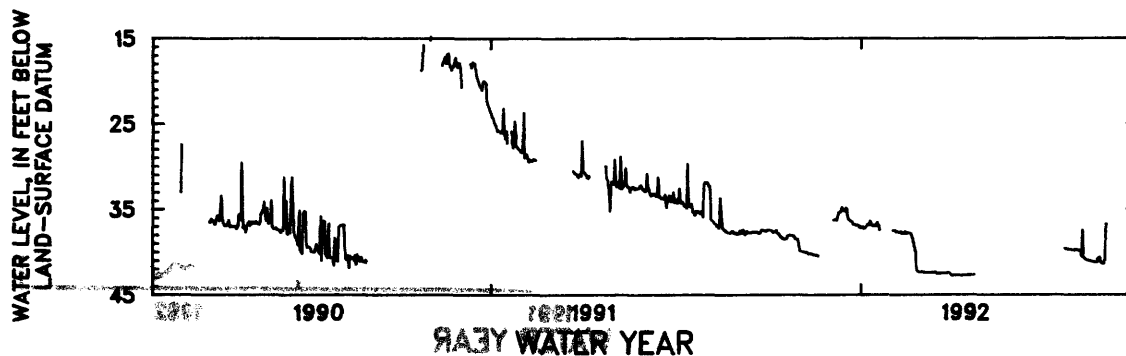
PERIOD OF RECORD.--February 28, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.19 ft (4.32 m) below land-surface datum, Nov. 3, 1990; lowest water level recorded, 43.26 ft (13.2 m) below land-surface datum, Apr. 22, 1992

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37.41	39.27	---	37.03	---	42.32	42.76	---	---	---	39.72	---
2	37.41	39.90	---	37.16	37.46	42.34	42.75	---	---	---	39.78	---
3	37.40	39.91	---	37.04	37.46	42.33	42.74	---	---	---	39.79	---
4	37.42	39.93	---	37.22	37.44	42.42	42.73	---	---	---	39.81	---
5	37.46	39.94	36.20	37.15	37.63	42.42	42.75	---	---	---	39.82	---
6	37.57	39.96	36.24	37.03	37.63	42.41	42.75	---	---	---	40.54	---
7	37.69	39.97	36.22	36.79	37.63	42.41	42.75	---	---	---	37.38	---
8	37.60	40.03	36.26	36.82	37.63	42.40	42.74	---	---	---	40.64	---
9	37.63	40.00	35.83	36.81	37.71	42.40	42.76	---	---	---	40.77	---
10	37.43	40.18	35.35	36.31	37.60	42.39	42.75	---	---	---	40.86	---
11	37.78	40.19	35.32	36.74	37.81	42.38	42.74	---	---	---	40.94	---
12	37.85	40.19	35.30	36.83	37.77	42.38	42.73	---	---	---	40.97	---
13	37.98	40.19	34.71	36.91	37.77	42.37	42.73	---	---	---	41.02	---
14	38.23	40.24	35.10	36.87	37.58	42.37	42.72	---	---	---	41.03	---
15	38.24	40.31	35.14	36.90	37.81	42.36	42.71	---	---	---	41.08	---
16	38.43	40.31	35.21	36.92	37.78	42.51	42.71	---	---	---	41.12	---
17	38.41	40.33	34.81	36.50	37.73	42.51	42.70	---	---	---	41.14	---
18	38.48	40.38	34.98	36.87	37.73	42.50	42.69	---	---	---	41.14	---
19	38.46	40.38	36.14	36.95	37.79	42.50	42.68	---	---	---	41.21	---
20	38.37	40.44	36.22	37.41	37.88	42.49	42.68	---	---	---	41.21	---
21	38.06	---	36.29	---	38.37	42.48	42.67	---	---	39.57	41.21	---
22	38.05	---	36.39	---	38.88	42.48	42.66	---	---	39.59	40.78	---
23	38.01	---	36.40	---	39.38	42.47	---	---	---	39.66	40.66	---
24	38.03	---	36.75	---	39.91	42.47	---	---	---	39.67	40.62	---
25	38.04	---	36.77	---	42.08	42.46	---	---	---	39.69	41.25	---
26	38.06	---	36.79	---	42.29	42.45	---	---	---	39.70	41.36	---
27	38.06	---	36.84	---	42.33	42.45	---	---	---	39.73	41.36	---
28	38.27	---	36.84	---	42.34	42.44	---	---	---	39.77	41.36	---
29	38.48	---	36.87	---	42.33	42.53	---	---	---	39.76	40.94	---
30	38.51	---	36.92	---	---	---	---	---	---	39.78	36.74	41.66
31	38.53	---	37.12	---	---	42.76	---	---	---	39.69	---	---
MEAN	37.98	40.10	36.04	36.91	38.71	42.44	42.72	---	---	39.69	40.54	41.66

WTR YR 1992 MEAN 39.46 HIGHEST 34.70 DEC. 16-17, 1991 LOWEST 43.26 APR. 22, 1992



## ST. CROIX, U.S. VIRGIN ISLANDS

174319064454401. Local number, 15.

LOCATION.--Lat 17°43'19", long 64°45'44", Hydrologic Unit 21020002, 2.55 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64, 4.00 mi southwest of Christiansted Plaza, and 2.30 mi northeast of the Experimental Station. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA-23a at Barren Spot well field.

AQUIFER.--Post Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-110 ft (0-33.5 m), screened 70-110 ft (21.3-33.5 m). Depth 110 ft (33.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 65 ft (19.8 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.50 ft (1.07 m) above land-surface datum.

REMARKS.--Recording observation well.

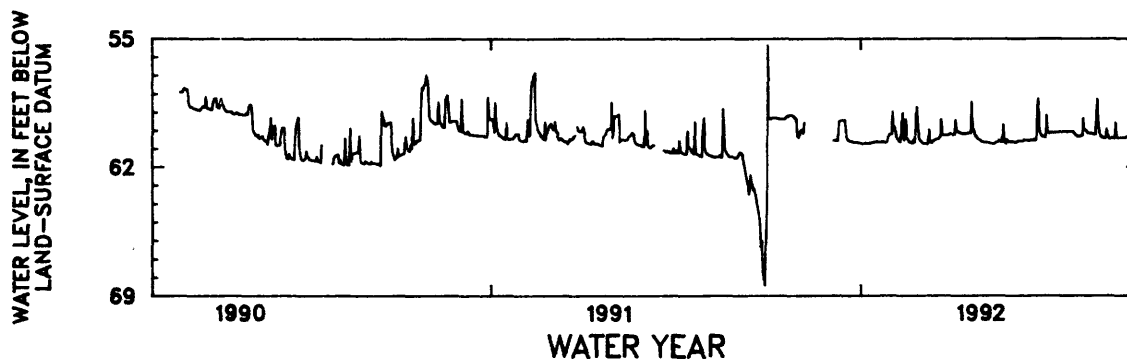
PERIOD OF RECORD.--February 28, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 55.29 ft (16.8 m) below land-surface datum, Oct. 1, 1991; lowest water level recorded, 69.68 ft (21.3 m) below land-surface datum, Sept. 29, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55.29	60.37	---	60.69	58.93	60.64	60.20	60.63	60.65	60.38	60.29	60.34
2	59.30	60.01	---	60.72	60.01	60.69	60.20	60.64	60.65	59.12	60.32	60.44
3	59.36	59.96	---	60.72	59.78	60.71	59.40	60.64	60.62	60.12	60.34	60.43
4	59.34	59.94	---	60.72	60.07	60.72	59.98	60.65	60.58	60.15	60.30	60.43
5	59.34	60.15	60.53	60.72	60.35	60.72	60.05	60.66	60.58	60.12	60.29	60.38
6	59.29	59.57	60.55	60.68	60.47	60.72	60.08	60.66	60.58	60.11	60.29	60.42
7	59.29	---	60.50	60.69	60.51	60.73	60.11	60.68	60.58	60.11	59.30	60.43
8	59.29	---	60.56	60.70	60.61	59.92	60.12	60.70	60.58	60.11	59.94	59.55
9	59.29	---	60.57	60.70	60.61	60.55	60.16	60.71	60.57	60.11	59.99	60.38
10	59.31	---	59.49	60.69	59.57	60.64	60.16	60.72	60.50	60.11	60.01	60.41
11	59.32	---	59.46	60.67	59.00	60.67	60.16	60.73	60.52	60.11	60.13	60.41
12	59.34	---	59.45	60.66	60.39	60.59	60.16	60.70	60.51	60.11	60.14	60.41
13	59.35	---	59.44	60.64	60.54	60.52	60.16	60.65	60.54	60.11	60.16	60.41
14	59.35	---	59.43	60.64	59.36	60.49	60.16	60.63	60.54	60.09	60.16	60.41
15	59.35	---	59.43	60.62	60.37	60.48	60.12	60.63	60.55	60.07	60.16	60.41
16	59.35	---	59.40	60.62	60.47	60.46	60.12	60.52	60.52	60.08	60.18	60.39
17	59.35	---	60.10	60.62	60.58	60.44	60.12	60.58	60.52	60.06	60.20	60.40
18	59.35	---	60.40	60.62	60.64	60.43	60.12	60.61	60.52	60.06	60.18	60.40
19	59.28	---	60.50	60.62	60.65	60.34	58.40	60.63	60.52	60.06	60.20	60.34
20	59.23	---	60.54	60.62	60.67	59.35	59.90	59.64	60.48	60.05	59.05	60.37
21	59.22	---	60.57	60.62	60.70	60.25	59.99	60.57	60.55	60.04	58.25	60.39
22	59.16	---	60.60	60.62	60.47	60.25	60.19	60.65	60.49	60.07	59.57	60.39
23	59.14	---	60.58	60.62	60.63	60.25	60.30	60.72	58.61	60.05	60.16	60.39
24	59.14	---	60.62	60.62	59.37	60.25	60.32	60.46	58.24	60.05	60.27	60.39
25	59.14	---	60.64	60.65	58.67	60.25	60.44	60.57	60.00	60.05	60.33	60.39
26	59.20	---	60.64	60.63	59.75	60.25	60.47	60.62	60.19	60.05	60.38	60.39
27	59.25	---	60.64	60.60	60.31	60.23	60.49	60.62	60.27	60.05	60.40	60.37
28	59.33	---	60.65	60.29	60.48	60.17	60.56	60.64	60.32	60.05	60.42	60.35
29	59.33	---	60.66	60.19	60.56	60.18	60.59	60.58	60.34	60.14	60.42	58.89
30	60.26	---	60.67	60.18	---	60.18	60.62	60.63	60.36	60.21	59.89	60.05
31	60.34	---	60.67	60.17	---	60.20	---	60.64	---	60.25	60.27	---
MEAN	59.22	60.00	60.27	60.60	60.16	60.40	60.13	60.60	60.35	60.07	60.06	60.31

WTR YR 1992 MEAN 60.19 HIGHEST 55.29 OCT. 1, 1991 LOWEST 60.75 MAY 10-11, 1992



GROUND-WATER LEVELS  
ST. THOMAS, U.S. VIRGIN ISLANDS

182050064580400. Local number, 1.

LOCATION.--Lat 18°20'50", long 64°58'04", Hydrologic Unit 21020001, 2.18 mi northwest of Charlotte Amalie, 0.68 mi northeast of Harry S. Truman Airport entrance on Hwy 302, and 0.97 mi southwest of Dorothea. Owner: Mr. Michael Dudovick, Name: Thach Farm.

AQUIFER.--Volcanic rocks of Cretaceous age.

WELL CHARACTERISTICS.--Drilled water-table production well, diameter 6 in (0.15 m); cased 6 in (0.15 m) 0-25 ft (0-7.62 m), open hole 25-80 ft (7.62-24.4 m). Depth 80 ft (24.4 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 80 ft (24.4 m) above mean sea level, from topographic map. Measuring point: Top of 6 in (0.15 m) casing, 2.50 ft (0.76 m) above land-surface datum. Prior to Mar. 23, 1982, top of 6 in (0.15 m) casing, 1.30 ft (0.40 m) above land-surface datum.

REMARKS.--Non-potable public-water supply and observation well.

PERIOD OF RECORD.--October 1963 to August 1969, discontinued. March 1982 to current year.

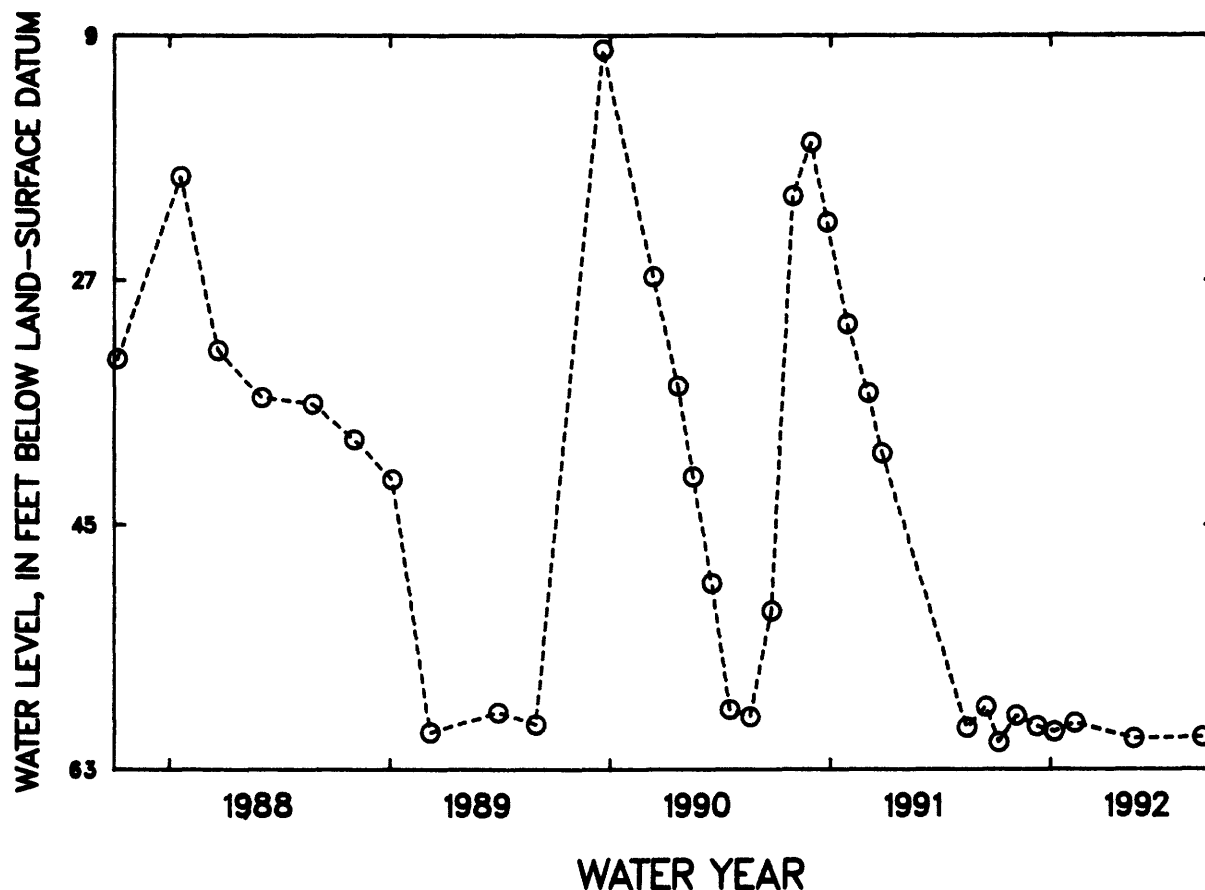
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.33 ft (0.71 m) below land-surface datum, Nov. 20, 1984; lowest water level measured, a60.99 ft (18.60 m) below land-surface datum, Oct. 7, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 7	a60.99	Dec. 9	59.80	Feb. 10	a59.55	Sept. 8	a60.60
Nov. 5	59.01	Jan. 7	a60.21	May. 18	a60.70		

WATER YEAR 1992      HIGHEST 59.01 NOV. 5, 1991      LOWEST 60.99 OCT. 7, 1991

a Pumping.





## GROUND-WATER LEVELS

571

## ST. THOMAS, U.S. VIRGIN ISLANDS

182138064543100. Local number, 2.

LOCATION.--Lat 18°21'38", long 66°54'31", Hydrologic Unit 21020001, 2.25 mi northeast of Charlotte Amalie, 0.84 mi north of Winterberg Peak, and 0.93 mi northeast of Canaan. Owner: Mahogany Run Resort, Name: Mahogany 15.

AQUIFER.--Fractured rocks.

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 145 ft (44.21 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 100 ft (30.5 m) above mean sea level, from topographic map. Prior to this report, elevation used was 120 ft (36.6 m). Measuring point: Top of 6 in (0.15 m) casing, 0.10 ft (0.03 m) below land-surface datum. Prior September 16, 1991, 0.00 ft (0.00 m), prior May 31, 1991, 1.30 ft (0.40 m), and prior March 4, 1991, 1.20 ft (0.36 m) below land-surface datum.

REMARKS.--Observation well. Water levels affected by pumpage.

PERIOD OF RECORD.--March 1982 to current year.

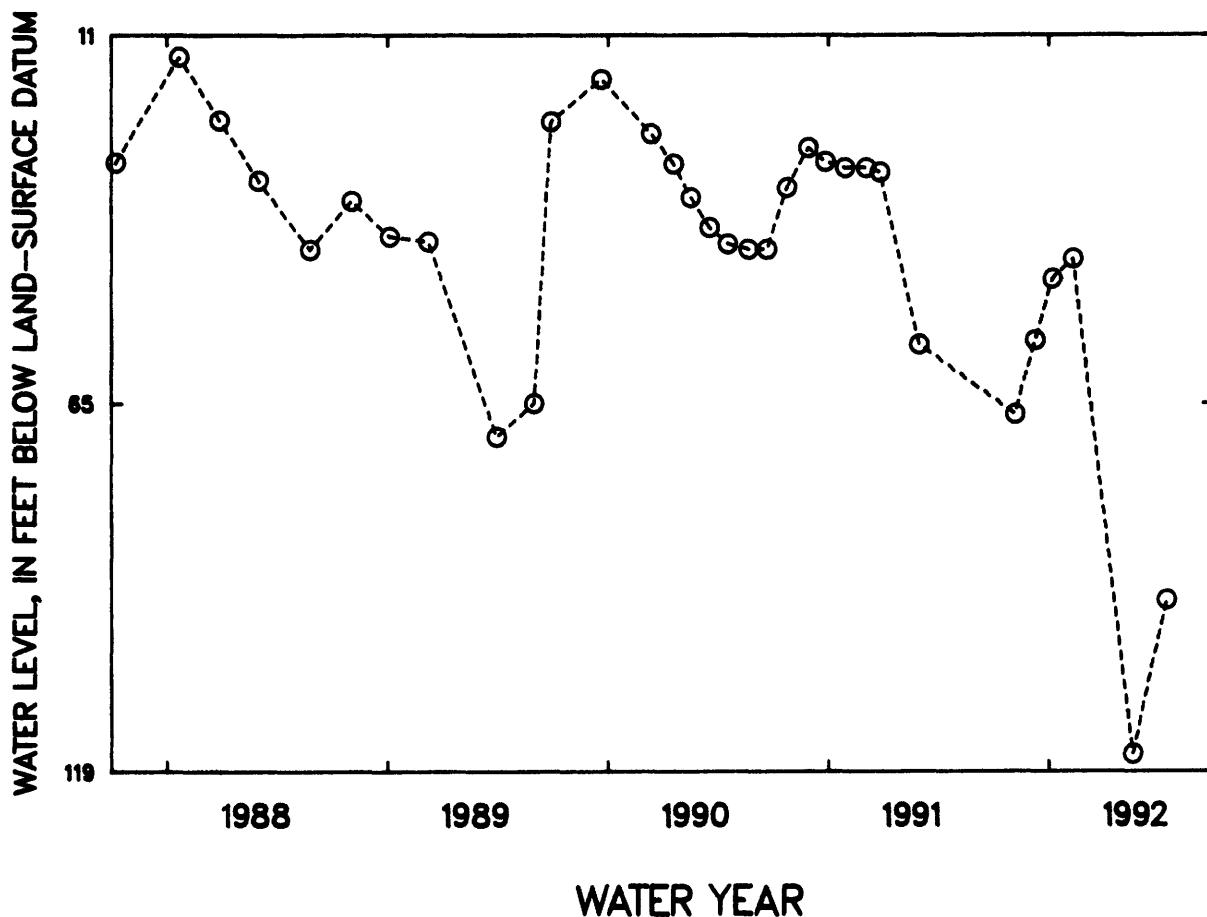
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.45 ft (3.79 m) below land-surface datum, July 1, 1986; lowest water level measured, 120.92 ft (36.9 m) below land-surface datum, Aug. 15, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 6	a66.57	Jan. 7	46.73	May 19	a116.42	July 14	a93.75
Dec. 9	a55.75	Feb. 10	a43.78				

WATER YEAR 1992 HIGHEST a43.78 FEB. 10, 1992 LOWEST a116.4 MAY 19, 1992

a Pumping.



## GROUND-WATER LEVELS

ST. THOMAS, U.S. VIRGIN ISLANDS

182138064542500. Local number, 3.

LOCATION.--Lat 18°21'38", long 64°54'25", Hydrologic Unit 21020001, 2.50 mi northeast of Charlotte Amalie, 0.82 mi north of Winterberg Peak, and 0.97 mi northeast of Canaan. Owner: Mahogany Run Resort, Name: Mahogany 16.

AQUIFER.--Fractured rocks.

WELL CHARACTERISTICS.--Drilled water-table production well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 145 ft (44.21 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 100 (30.5 m) above mean sea level, from topographic map. Prior to this report, elevation used was 130 ft (39.6 m). Measuring point: Top of 6 in (0.15 m) casing, 1.30 ft (0.40 m) below land-surface datum.

REMARKS.--Water levels affected by nearby pumping well.

PERIOD OF RECORD.--March 1982 to current year.

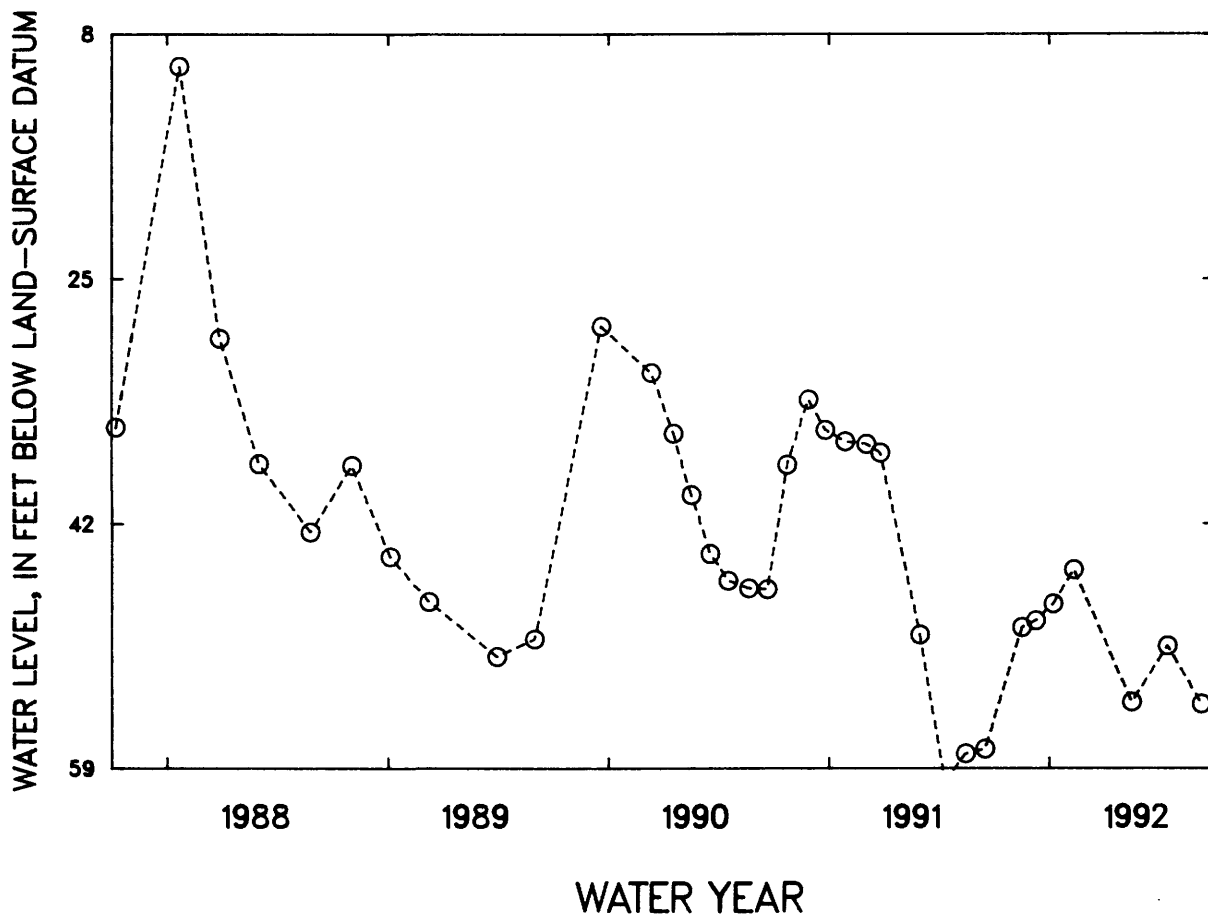
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.25 ft (3.12 m) below land-surface datum Jan. 21, 1988; lowest water level measured, 103.85 ft (31.65 m) below land-surface datum, Oct. 4, 1984.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 16	49.20	Jan. 7	47.57	May 16	54.39	Sept. 8	54.53
Dec. 9	48.74	Feb. 10	45.19	July 14	50.49		

WATER YEAR 1992 HIGHEST 45.19 FEB. 10, 1992 LOWEST 54.53 SEPT. 8, 1992

a Pumping.



## GROUND-WATER LEVELS

## ST. THOMAS, U.S. VIRGIN ISLANDS

182136064541900. Local number, 4.

LOCATION.--Lat 18°21'36", long 64°54'19", Hydrologic Unit 21020001, 2.75 mi northeast of Charlotte Amalie, 0.81 mi north of Winterberg Peak, and 0.99 mi northeast of Canaan. Owner: Mahogany Run Resort, Name: Mahogany 17.

AQUIFER.--Fractured rock.

WELL CHARACTERISTICS.--Drilled water-table production well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 145 ft (44.21 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 110 ft (33.5 m) above mean sea level, from topographic map. Prior to this report, elevation used was 140 ft (42.7 m). Measuring point: Top of 6 in (0.15 m) casing at land-surface datum.

REMARKS.--Public water supply. Water levels affected by nearby pumping well.

PERIOD OF RECORD.--March 1982 to current year.

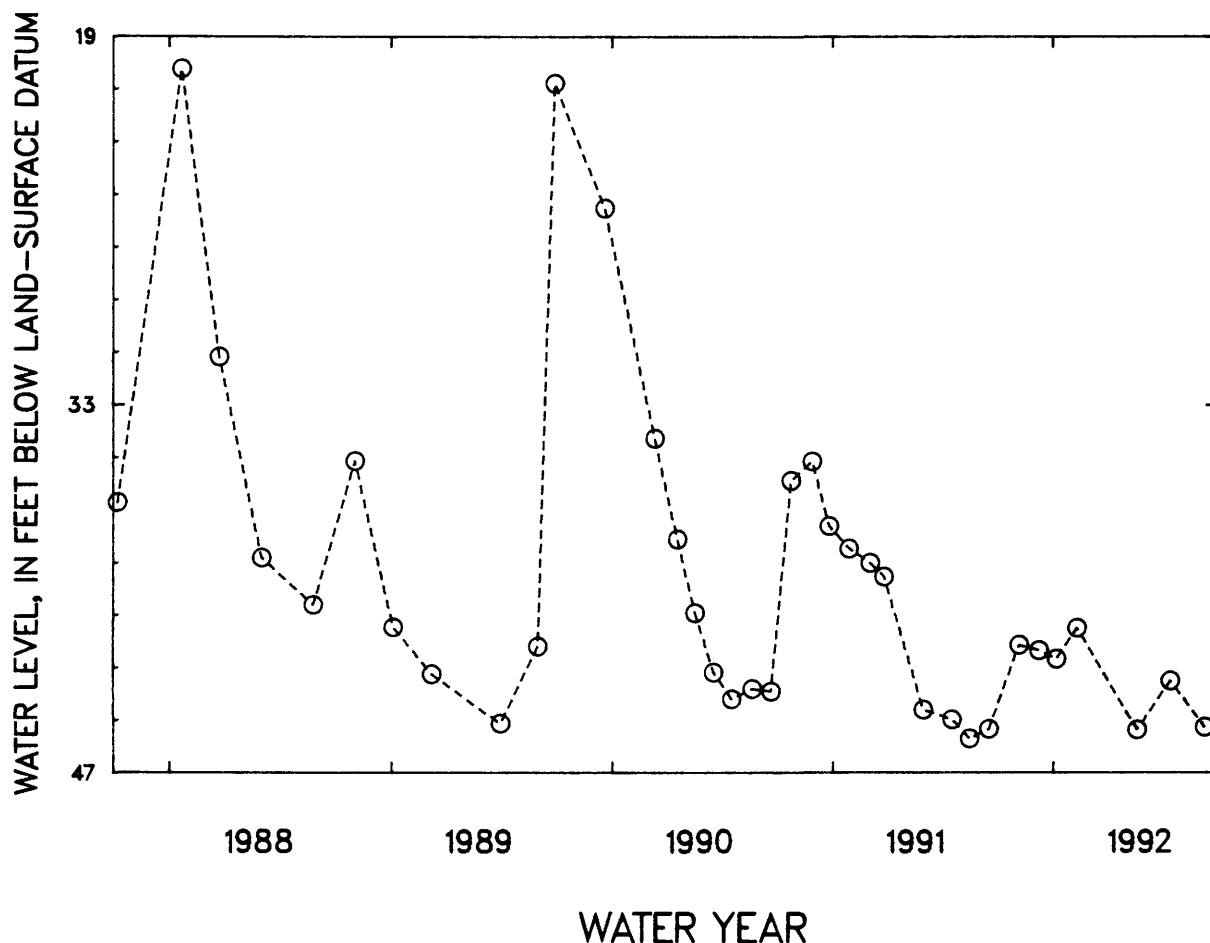
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.49 ft (5.33 m) below land-surface datum, Dec. 11 1985; lowest water level measured, 40.40 ft (12.41 m) below land-surface datum, Sept. 10, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 6	42.14	Jan. 7	42.67	May 19	45.36	Sept. 8	45.26
Dec. 9	42.35	Feb. 10	41.49	July 14	43.50		

WATER YEAR 1992      HIGHEST 41.49 FEB. 10, 1992      LOWEST 45.36 MAY 19, 1992

a Pumping.



## GROUND-WATER LEVELS

## ST. THOMAS, U.S. VIRGIN ISLANDS

182038064550300. Local number, 6.

LOCATION.--Lat 18°20'38", long 64°55'03", Hydrologic Unit 21020001, 1.12 mi east of Charlotte Amalie, 0.75 mi southwest of Winterberg Peak, and 1.08 mi southeast of Canaan. Owner: U.S. Virgin Islands Government, Name: Grade School 3.

AQUIFER.--Volcanic breccia.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 70 ft (21.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 60 ft (18.3 m) above mean sea level, from topographic map.

Measuring point: Top of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 1.30 ft (0.40 m) above land-surface datum. Prior to June 27, 1983, top of 6 in (0.15 m) casing, 2.90 ft (0.88 m) above land-surface datum.

REMARKS.--Recording observation well.

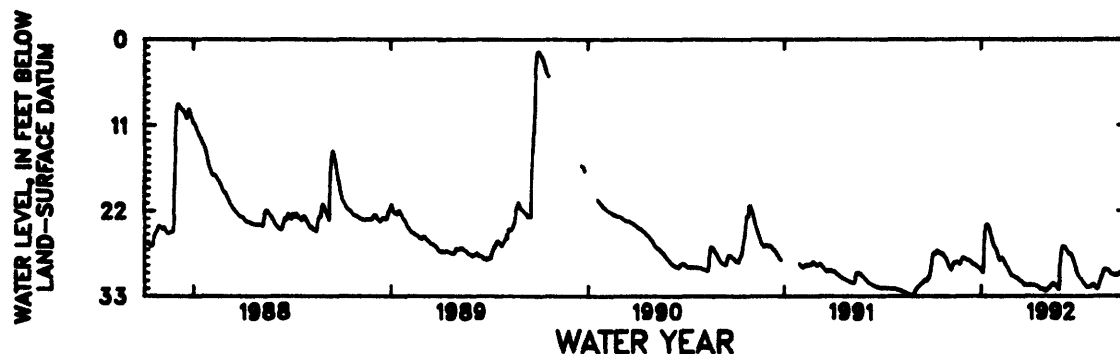
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.53 ft (0.47 m) below land-surface datum, Oct. 1, 1989; lowest water level recorded, 35.38 ft (10.79 m) below land-surface datum, July 21, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.37	28.77	28.02	---	27.53	30.37	31.51	32.36	26.58	30.55	31.95	30.26
2	28.97	28.95	28.10	29.68	27.79	30.44	31.50	32.26	26.65	30.65	32.02	30.33
3	28.32	29.06	28.16	29.79	28.04	30.53	31.54	32.15	26.62	30.69	32.08	30.27
4	27.82	29.17	28.21	29.88	28.26	30.62	31.56	32.01	26.60	30.74	32.03	30.25
5	27.51	29.30	28.22	29.96	28.37	30.65	31.58	31.92	26.66	30.83	31.90	30.20
6	27.42	29.41	28.24	29.05	28.19	30.64	31.60	31.90	26.78	30.96	31.66	30.18
7	27.41	29.54	28.27	25.97	28.09	30.60	31.61	31.89	26.92	31.11	31.39	30.24
8	27.50	29.63	28.31	24.66	28.07	30.61	31.59	31.80	27.09	31.22	31.18	30.35
9	27.56	29.29	28.37	24.15	28.07	30.60	31.61	31.66	27.27	31.28	30.94	30.31
10	27.42	28.97	28.39	23.92	28.09	30.78	31.63	31.54	27.42	31.34	30.72	30.19
11	27.19	28.78	28.41	23.76	28.17	30.89	31.66	31.44	27.54	31.47	30.53	30.16
12	27.10	28.70	28.45	23.73	28.30	30.95	31.70	31.38	27.59	31.61	30.40	30.20
13	27.11	28.65	28.51	23.79	28.45	30.98	31.72	31.35	27.55	31.70	30.33	30.12
14	27.16	28.56	28.59	23.89	28.61	31.00	31.74	31.39	27.48	31.77	30.19	30.02
15	27.18	28.59	28.67	24.04	28.79	31.84	31.76	31.50	27.51	31.85	29.84	29.95
16	27.26	28.60	28.77	24.27	28.94	31.12	31.80	31.59	27.61	31.87	29.60	29.92
17	27.35	28.58	28.84	24.51	29.06	31.20	31.87	31.63	27.75	31.84	29.53	29.93
18	27.46	28.58	28.91	24.77	29.16	31.29	31.96	31.64	27.92	31.80	29.53	29.85
19	27.50	28.61	28.93	25.04	29.25	31.37	32.05	31.69	28.09	31.76	29.58	29.81
20	27.44	28.67	28.92	25.32	29.39	31.46	32.08	31.79	28.29	31.76	29.58	29.86
21	27.39	28.75	28.91	25.61	29.54	31.54	32.08	31.91	28.51	31.77	29.57	30.05
22	27.44	28.82	28.91	25.92	29.66	31.59	32.10	32.03	28.72	31.76	29.52	30.03
23	27.54	28.88	29.04	26.19	29.88	31.68	32.15	32.14	28.94	31.68	29.56	29.84
24	27.67	28.92	29.17	26.27	29.94	31.57	32.20	32.18	29.16	31.57	29.66	29.66
25	27.75	28.63	29.20	26.53	30.10	31.54	32.18	30.87	29.40	31.49	29.71	29.57
26	27.85	28.35	29.23	26.67	30.26	31.54	32.13	29.33	29.64	31.43	29.74	29.46
27	27.96	28.18	29.28	26.76	30.37	31.58	32.13	28.44	29.86	31.43	29.87	29.35
28	28.08	28.07	29.33	26.84	30.40	31.63	32.21	27.78	30.05	31.53	29.98	29.34
29	28.20	28.01	29.37	26.93	30.35	31.63	32.30	27.88	30.24	31.65	30.09	29.41
30	28.35	28.00	---	27.07	---	31.58	32.38	26.75	30.41	31.76	30.11	29.36
31	28.53	---	---	27.28	---	31.56	---	26.59	---	31.87	30.13	---
MEAN	27.70	28.77	28.68	26.08	28.93	31.12	31.86	30.96	28.03	31.44	30.42	29.95

WTR YR 1992 MEAN 29.51 HIGHEST 23.70 JAN. 12, 1992 LOWEST 32.40 APR. 30, MAY 1, 1992



## GROUND-WATER LEVELS

575

## ST. THOMAS, U.S. VIRGIN ISLANDS

182036064545200. Local number, 7.

LOCATION.--Lat 18°20'36", long 64°54'52", Hydrologic Unit 21020001, 1.33 mi east of Charlotte Amalie, 0.55 mi southwest of Winterberg Peak, and 1.20 mi southeast of Canaan. Owner: U.S. Virgin Islands Water and Power Authority, Name: St. Thomas Hospital, VINO-1.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), cased 4 in (0.10 m), 0-145 ft (0-44.2 m), screened 100-145 ft (30.5-44.2 m). Depth 145 ft (44.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 85 ft (25.9 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.20 ft (0.97 m) above land-surface datum.

REMARKS.--Observation well. Drilled on February 1991. Automated digital recorder installed on May 1991. Pumping test performed during May 22-24, 1991.

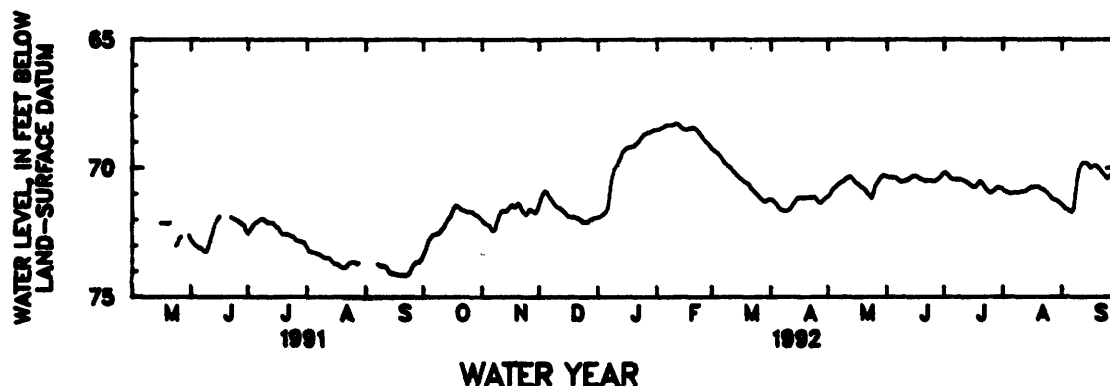
PERIOD OF RECORD.--May 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 68.23 ft (20.8 m) below land-surface datum, Feb. 11, 1992; lowest water level recorded, 74.17 ft (22.6 m) below land-surface datum, Sept. 22-23, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73.35	72.03	71.38	71.90	68.51	69.27	71.21	71.10	70.33	70.19	70.83	71.44
2	73.19	72.11	71.16	71.08	68.50	69.33	71.25	71.03	70.36	70.17	70.90	71.52
3	72.99	72.16	70.99	71.02	68.47	69.37	71.34	70.88	70.37	70.26	70.92	71.58
4	72.79	72.20	70.89	71.76	68.43	69.43	71.42	70.80	70.37	70.37	70.95	71.63
5	72.67	72.23	70.93	71.69	68.39	69.52	71.53	70.73	70.36	70.42	71.80	71.67
6	72.59	72.39	71.07	71.54	68.34	69.62	71.61	70.66	70.39	70.44	70.98	71.71
7	72.56	72.42	71.21	71.03	68.33	69.75	71.64	70.60	70.48	70.44	70.98	71.57
8	72.54	72.34	71.30	70.55	68.34	69.84	71.66	70.55	70.52	70.45	70.95	71.00
9	72.53	72.04	71.41	70.24	68.34	69.91	71.67	70.52	70.54	70.45	70.96	70.42
10	72.47	71.81	71.49	70.01	68.31	69.96	71.64	70.46	70.51	70.45	70.93	70.06
11	72.37	71.67	71.53	69.88	68.26	70.03	71.57	70.40	70.49	70.47	70.92	69.86
12	72.29	71.65	71.56	69.73	68.28	70.11	71.48	70.36	70.45	70.50	70.91	69.79
13	72.12	71.67	71.62	69.56	68.36	70.20	71.37	70.35	70.39	70.56	70.89	69.80
14	71.96	71.66	71.69	69.37	68.43	70.29	71.24	70.42	70.34	70.59	70.83	69.82
15	71.88	71.55	71.77	69.29	68.49	70.36	71.17	70.50	70.31	70.66	70.78	69.92
16	71.72	71.46	71.86	69.23	68.51	70.42	71.14	70.59	70.30	70.71	70.75	70.01
17	71.54	71.42	71.89	69.20	68.51	70.48	71.16	70.63	70.33	70.74	70.74	69.95
18	71.45	71.52	71.90	69.19	68.48	70.54	71.15	70.71	70.40	70.71	70.73	69.90
19	71.46	71.47	71.89	69.18	68.45	70.57	71.15	70.76	70.44	70.58	70.73	69.93
20	71.53	71.37	71.91	69.14	68.44	70.62	71.14	70.81	70.46	70.50	70.73	70.00
21	71.61	71.47	71.97	69.06	68.44	70.70	71.14	70.88	70.51	70.58	70.80	70.08
22	71.63	71.65	71.96	68.99	68.52	70.82	71.13	71.00	70.48	70.67	70.83	70.18
23	71.65	71.74	72.02	68.91	68.61	70.89	71.13	71.09	70.49	70.81	70.89	70.26
24	71.70	71.82	72.09	68.81	68.71	70.97	71.12	71.17	70.48	70.89	70.94	70.37
25	71.70	71.72	72.10	68.70	68.81	71.05	71.21	70.94	70.52	70.95	71.03	70.43
26	71.70	71.59	72.09	68.67	68.93	71.14	71.33	70.69	70.52	70.94	71.13	70.32
27	71.70	71.63	72.08	68.63	69.01	71.22	71.35	70.58	70.48	70.88	71.20	70.29
28	71.79	71.69	71.99	68.62	69.08	71.28	71.28	70.46	70.43	70.82	71.24	70.26
29	71.82	71.74	71.96	68.59	69.17	71.29	71.21	70.35	70.35	70.75	71.26	70.30
30	71.87	71.63	71.93	68.54	---	71.26	71.15	70.29	70.26	70.75	71.31	70.33
31	71.95	---	71.92	68.52	---	71.21	---	70.30	---	70.77	71.38	---
MEAN	72.10	71.79	71.66	69.75	68.53	70.37	71.32	70.66	70.42	70.60	70.95	70.48

WTR YR 1992 MEAN 70.73 HIGHEST 68.23 FEB. 11, 1992 LOWEST 73.43 OCT. 1, 1991



## GROUND-WATER LEVELS

## ST. THOMAS, U.S. VIRGIN ISLANDS

182038064580000. Local number, 8.

LOCATION.--Lat 18°20'38", long 64°58'00", Hydrologic Unit 21020001, 2.08 mi northwest of Charlotte Amalie, 0.50 mi northeast of Harry S. Truman Airport entrance on Hwy 302, and 1.15 mi southwest of Dorothea. Owner: U.S. Virgin Islands Water and Power Authority, Name: Kirwan Terrace, VISO-6.

AQUIFER.--Alluvial deposits, volcanic rock.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-56 in (0-17.1 m), screened 56-76 ft (17.1-23.2 m). Depth 76 ft (23.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 35 ft (10.7 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Observation well. Drilled on July 1, 1991. Automated digital recorder installed on October 2, 1991.

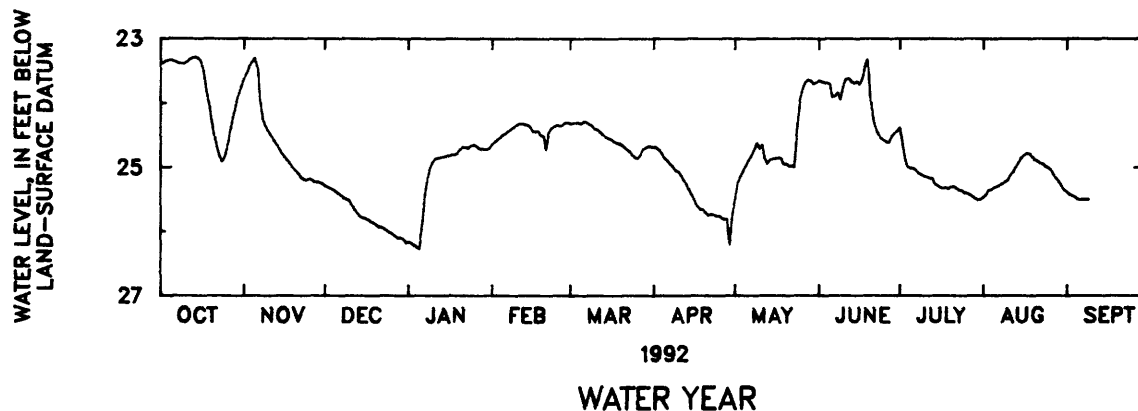
PERIOD OF RECORD.--October 1991 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 23.27 ft (7.09 m) below land-surface datum, Oct. 14, 1991; lowest water level recorded, 26.35 ft (8.03 m) below land-surface datum, Apr. 29, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	23.62	25.29	26.16	24.64	24.32	24.68	25.53	23.65	24.38	25.47	25.39
2	23.38	23.53	25.31	26.18	24.60	24.31	24.70	25.24	23.67	24.66	25.43	25.43
3	23.35	23.43	25.33	26.22	24.56	24.30	24.74	25.13	23.68	24.89	25.36	25.45
4	23.34	23.36	25.35	26.25	24.53	24.30	24.79	25.06	23.69	25.00	25.35	25.47
5	23.34	23.30	25.38	26.27	24.49	24.32	24.86	24.99	23.71	25.02	25.32	25.50
6	23.35	23.46	25.41	25.90	24.47	24.28	24.90	24.89	23.91	25.02	25.30	25.51
7	23.37	24.00	25.44	25.46	24.43	24.30	24.95	24.82	23.89	25.05	25.28	25.50
8	23.39	24.27	25.48	25.17	24.40	24.33	24.99	24.73	23.84	25.10	25.26	25.50
9	23.39	24.36	25.50	25.01	24.37	24.35	25.05	24.62	23.94	25.12	25.23	25.50
10	23.39	24.44	25.52	24.91	24.34	24.40	25.07	24.71	23.74	25.14	25.20	---
11	23.36	24.51	25.60	24.86	24.32	24.41	25.13	24.65	23.62	25.15	25.12	---
12	23.32	24.59	25.67	24.85	24.32	24.45	25.20	24.87	23.62	25.17	25.07	---
13	23.30	24.65	25.72	24.84	24.33	24.49	25.27	24.95	23.67	25.18	25.00	---
14	23.29	24.72	25.77	24.83	24.34	24.53	25.35	24.88	23.69	25.27	24.93	---
15	23.31	24.79	25.79	24.82	24.37	24.55	25.43	24.87	23.67	25.29	24.85	---
16	23.35	24.84	25.80	24.82	24.44	24.57	25.51	24.86	23.71	25.32	24.81	---
17	23.53	24.89	25.82	24.80	24.44	24.60	25.61	24.85	23.63	25.33	24.78	---
18	23.78	24.94	25.85	24.80	24.43	24.62	25.66	24.86	23.43	25.32	24.79	---
19	23.99	25.00	25.87	24.78	24.50	24.63	25.66	24.95	23.32	25.34	24.84	---
20	24.27	25.05	25.90	24.72	24.51	24.66	25.71	24.95	23.90	25.31	24.89	---
21	24.50	25.10	25.93	24.68	24.73	24.69	25.75	24.98	24.22	25.30	24.91	---
22	24.69	25.16	25.94	24.69	24.45	24.73	25.73	24.98	24.38	25.33	24.94	---
23	24.84	25.19	25.96	24.70	24.39	24.76	25.74	25.00	24.48	25.36	24.95	---
24	24.92	25.20	25.99	24.66	24.36	24.81	25.76	24.41	24.56	25.37	24.99	---
25	24.83	25.18	26.02	24.65	24.34	24.85	25.76	23.95	24.58	25.40	25.01	---
26	24.64	25.20	26.04	24.67	24.35	24.86	25.79	23.78	24.61	25.41	25.04	---
27	24.40	25.23	26.07	24.70	24.34	24.81	25.81	23.67	24.61	25.43	25.13	---
28	24.20	25.23	26.10	24.72	24.30	24.71	25.81	23.64	24.51	25.46	25.18	---
29	24.01	25.24	26.10	24.72	24.30	24.69	26.22	23.66	24.47	25.49	25.23	---
30	23.87	25.26	26.12	24.72	---	24.67	25.73	23.70	24.44	25.51	25.30	---
31	23.74	---	26.18	24.70	---	24.68	---	23.68	---	25.50	25.36	---
MEAN	23.81	24.59	25.75	25.07	24.43	24.55	25.38	24.64	23.96	25.21	25.11	25.47

WTR YR 1992 MEAN 24.80 HIGHEST 23.27 OCT. 14, 1991 LOWEST 26.35 APR. 29, 1992



## GROUND-WATER LEVELS

577

## ST. THOMAS, U.S. VIRGIN ISLANDS

181917064524600. Local number, 9.

LOCATION.--Lat 18°19'17", long 64°52'46", Hydrologic Unit 21020001, 0.20 mi southwest of Nadir, 1.25 mi northeast of Bolongo Bay Resort, and 1.95 mi southwest of the National Park Service Visitors Information Center at Red Hook.

Owner: U.S. Virgin Islands Water and Power Authority, Name: Race Track, VISO-9.

AQUIFER.--Alluvial deposits, volcanic rock.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-6 in (0-1.83 m), screened 6-35 ft (1.83-10.7 m). Depth 35 ft (10.7 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 15 ft (4.57 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Observation well. Drilled on July 10, 1991. Automated digital recorder installed on October 3, 1991.

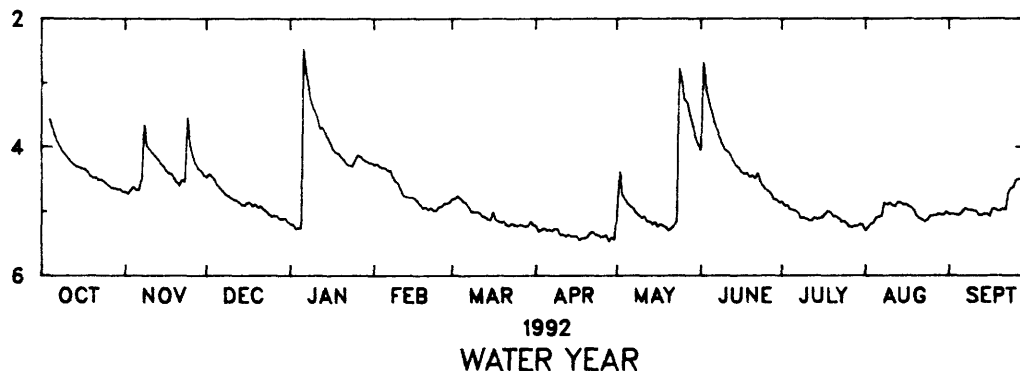
PERIOD OF RECORD.--October 1991 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.37 ft (0.72 m) below land-surface datum, Jan. 6, 1992; lowest water level recorded, 5.49 ft (1.67 m) below land-surface datum, Apr. 18, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	4.70	4.47	5.20	4.28	4.81	5.23	5.05	4.06	4.85	5.30	5.05
2	---	4.73	4.42	5.21	4.27	4.80	5.32	4.38	2.67	4.91	5.25	5.04
3	---	4.67	4.47	5.27	4.31	4.77	5.29	4.76	3.08	4.91	5.19	5.05
4	3.58	4.62	4.51	5.26	4.33	4.80	5.27	4.82	3.29	4.97	5.17	5.06
5	3.71	4.67	4.59	5.26	4.33	4.85	5.30	4.89	3.45	4.98	5.09	5.04
6	3.82	4.67	4.64	2.46	4.37	4.87	5.29	4.93	3.63	4.99	5.08	5.00
7	3.93	4.51	4.69	2.85	4.37	4.94	5.30	4.96	3.74	5.02	5.07	4.95
8	4.01	3.65	4.74	3.10	4.48	5.01	5.27	5.03	3.86	5.11	4.86	4.98
9	4.09	3.99	4.77	3.33	4.53	5.01	5.28	5.07	3.97	5.10	4.90	4.98
10	4.13	4.04	4.80	3.43	4.57	5.01	5.37	5.10	4.06	5.12	4.87	4.99
11	4.19	4.09	4.82	3.53	4.67	5.03	5.36	5.08	4.08	5.14	4.91	5.00
12	4.24	4.14	4.83	3.72	4.77	5.08	5.39	5.16	4.14	5.15	4.92	5.06
13	4.28	4.19	4.86	3.70	4.78	5.09	5.36	5.16	4.23	5.10	4.86	5.06
14	4.31	4.26	4.90	3.78	4.79	5.13	5.39	5.20	4.30	5.12	4.86	5.04
15	4.32	4.30	4.91	3.86	4.79	5.14	5.39	5.17	4.33	5.11	4.90	5.04
16	4.34	4.37	4.87	3.95	4.80	5.01	5.39	5.24	4.40	5.09	4.89	5.08
17	4.35	4.41	4.86	4.05	4.84	5.14	5.45	5.20	4.42	5.04	4.92	4.96
18	4.39	4.42	4.92	4.09	4.90	5.16	5.42	5.23	4.41	5.00	4.94	4.96
19	4.46	4.49	4.89	4.11	4.95	5.17	5.42	5.25	4.47	5.02	4.98	4.99
20	4.48	4.55	4.94	4.17	4.94	5.16	5.40	5.30	4.45	5.08	5.07	4.99
21	4.48	4.60	4.92	4.21	4.97	5.21	5.34	5.27	4.49	5.08	5.11	4.96
22	4.51	4.51	4.97	4.28	4.95	5.23	5.32	5.23	4.41	5.11	5.13	4.97
23	4.51	4.54	5.00	4.29	4.99	5.19	5.36	5.15	4.54	5.16	5.16	4.70
24	4.53	3.54	5.05	4.30	4.99	5.22	5.37	2.77	4.61	5.16	5.13	4.64
25	4.57	3.99	5.08	4.21	4.93	5.23	5.40	2.99	4.66	5.19	5.07	4.62
26	4.61	4.16	5.07	4.13	4.92	5.21	5.39	3.27	4.69	5.24	5.06	4.51
27	4.64	4.28	5.08	4.16	4.88	5.22	5.37	3.31	4.73	5.25	5.06	4.50
28	4.64	4.35	5.12	4.20	4.88	5.24	5.47	3.52	4.82	5.23	5.04	4.51
29	4.66	4.38	5.12	4.23	4.86	5.23	5.41	3.68	4.82	5.23	5.05	4.60
30	4.66	4.45	5.11	4.25	---	5.16	5.44	3.85	4.86	5.20	5.05	4.47
31	4.70	---	5.17	4.25	---	5.22	---	3.97	---	5.22	5.01	---
MEAN	4.33	4.34	4.86	4.09	4.70	5.08	5.36	4.64	4.19	5.09	5.03	4.89

WTR YR 1992 MEAN 4.72 HIGHEST 2.37 JAN. 6, 1992 LOWEST 5.49 APR. 18, 1992

WATER LEVEL, IN FEET BELOW  
LAND-SURFACE DATUM

## GROUND-WATER LEVELS

## ST. THOMAS, U.S. VIRGIN ISLANDS

182131064541000. Local number, 10.

LOCATION.--Lat 18°21'31", long 64°54'10", Hydrologic Unit 21020001, 2.35 mi northeast of Charlotte Amalie, 0.92 mi northeast of Winterberg Peak, and 1.22 mi southeast of Canaan. Owner: U.S. Virgin Islands Water and Power Authority. Name: Highway 42 dead end, VISO-10.

AQUIFER.--Alluvial deposits, volcanic rock.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-27 in (0-0.23 m), screened 27-53 ft (8.23-16.2 m). Depth 53 ft (16.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 155 ft (47.2 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Observation well. Drilled on July 15, 1991. Automated digital recorder installed on October 3, 1991.

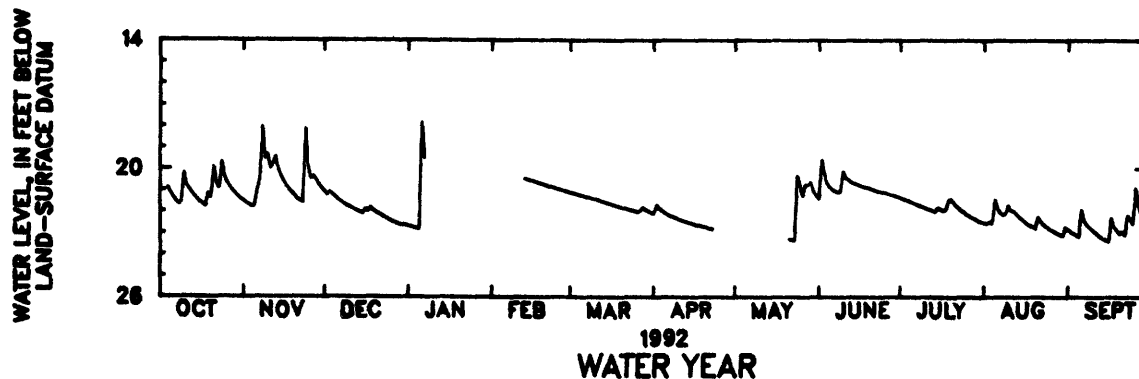
PERIOD OF RECORD.--October 1991 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 16.67 ft (5.00 m) below land-surface datum, Jan. 6, 1992; lowest water level recorded, 23.43 ft (7.14 m) below land-surface datum, Sept. 16, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	21.51	21.08	22.70	---	21.12	22.11	---	21.42	21.30	22.55	22.06
2	---	21.62	21.21	22.73	---	21.15	21.69	---	19.58	21.42	22.57	22.97
3	---	21.70	21.11	22.77	---	21.10	21.06	---	20.21	21.47	22.40	23.03
4	20.91	21.70	21.22	22.80	---	21.22	21.97	---	20.69	21.51	22.57	23.11
5	21.14	21.76	21.34	22.83	---	21.25	22.06	---	20.06	21.57	21.43	23.10
6	21.34	21.11	21.45	17.02	---	21.29	22.15	---	20.97	21.62	21.08	21.91
7	21.51	20.51	21.55	19.52	---	21.33	22.21	---	21.05	21.68	22.07	22.45
8	21.65	10.02	21.64	---	---	21.37	22.25	---	21.11	21.72	22.17	22.63
9	21.60	19.55	21.73	---	---	21.41	22.30	---	21.09	21.79	22.10	22.76
10	20.20	19.33	21.79	---	---	21.44	22.36	---	20.12	21.04	21.72	22.00
11	20.03	20.03	21.85	---	---	21.47	22.41	---	20.46	21.09	21.97	22.99
12	20.90	19.77	21.92	---	---	21.52	22.45	---	20.55	21.93	22.00	23.10
13	21.16	19.45	21.99	---	20.48	21.56	22.49	---	20.64	21.90	22.14	23.20
14	21.32	20.10	22.04	---	20.51	21.60	22.53	---	20.69	22.03	22.26	23.28
15	21.45	20.41	22.10	---	20.55	21.63	22.56	---	20.74	21.02	22.37	23.35
16	21.58	20.64	21.09	---	20.59	21.68	22.60	---	20.79	21.92	22.47	23.41
17	21.69	20.04	22.01	---	20.62	21.72	22.64	---	20.83	21.90	22.57	22.30
18	21.77	21.02	21.84	---	20.67	21.76	22.68	---	20.87	21.00	22.65	22.73
19	21.17	21.17	21.97	---	20.70	21.00	22.71	---	20.90	21.46	22.72	22.90
20	21.30	21.31	22.06	---	20.74	21.03	22.73	---	20.94	21.44	22.00	23.05
21	19.91	21.44	22.12	---	20.78	21.86	22.77	23.30	21.00	21.64	22.25	22.95
22	20.69	21.53	22.19	---	20.82	21.90	22.81	23.33	21.03	21.78	22.47	23.11
23	20.95	21.60	22.27	---	20.86	21.93	22.83	23.36	21.00	21.89	22.61	22.17
24	19.69	10.12	22.34	---	20.90	21.96	---	20.33	21.11	21.99	22.71	22.35
25	20.44	19.96	22.41	---	20.94	22.00	---	20.76	21.13	22.00	22.01	22.58
26	20.70	20.50	22.47	---	20.97	22.04	---	21.32	21.17	22.17	22.09	20.09
27	20.89	20.35	22.52	---	21.01	21.96	---	20.76	21.21	22.25	22.96	21.73
28	21.05	20.55	22.50	---	21.04	21.03	---	20.76	21.26	22.32	23.03	22.10
29	21.10	20.77	22.62	---	21.08	21.93	---	20.65	21.20	22.39	23.00	22.33
30	21.31	20.94	22.64	---	---	22.08	---	21.05	21.33	22.47	23.13	22.51
31	21.43	---	22.67	---	---	22.07	---	21.28	---	22.50	22.71	---
MEAN	21.07	20.58	21.96	21.60	20.78	21.64	22.40	21.54	20.07	21.86	22.46	22.69

WTR YR 1992 MEAN 21.65 HIGHEST 16.67 JAN. 6, 1992 LOWEST 23.43 SEPT. 16, 1992





## GROUND-WATER LEVELS

579

## ST. THOMAS, U.S. VIRGIN ISLANDS

182035064550200. Local number, 11.

LOCATION.--Lat 18°20'35", long 64°55'02", Hydrologic Unit 21020001, 0.05 mi east of Fort Christian in Charlotte Amalie town, 0.10 mi north of HWY 310 on Pearson Gardens area, and 0.72 mi southwest of Winterberg Peak.

Owner: U.S. Virgin Islands Water and Power Authority, Name: Lockhart School, VINO-11.

AQUIFER.--Alluvial deposits, volcanic rock.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-90 in (0-27.4 m), screened 90-110 ft (27.4-33.5 m). Depth 110 ft (33.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.50 ft (0.76 m) above land-surface datum.

REMARKS.--Observation well. Drilled on July 23, 1991. Automated digital recorder installed on November 19, 1991.

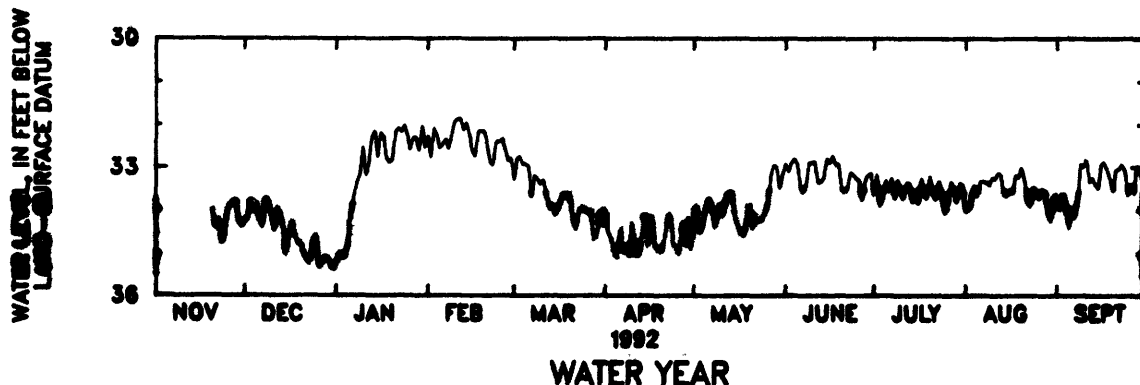
PERIOD OF RECORD.--November 1991 to September 1992.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 31.78 ft (9.69 m) below land-surface datum, Feb. 12, 1992; lowest water level recorded, 35.42 ft (10.8 m) below land-surface datum, Dec. 31, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	34.25	35.21	32.27	33.30	34.05	34.09	32.91	33.65	34.04	33.83
2	---	---	34.19	34.99	32.76	32.79	34.56	33.97	33.10	33.16	33.99	33.99
3	---	---	33.78	35.02	32.08	32.75	34.65	34.52	32.09	33.90	33.91	33.70
4	---	---	34.06	35.06	32.26	32.93	34.91	34.45	32.00	33.69	33.43	33.93
5	---	---	33.93	34.80	32.56	32.92	34.90	34.02	32.91	33.31	33.69	34.41
6	---	---	34.20	34.12	32.47	32.98	34.46	33.79	33.49	33.57	33.33	34.06
7	---	---	34.40	33.64	32.35	33.70	34.91	33.91	33.59	33.26	33.33	34.19
8	---	---	33.73	33.34	32.57	33.19	34.79	34.41	33.39	33.74	33.36	33.82
9	---	---	35.83	33.17	32.23	33.27	34.94	34.14	32.88	33.29	33.41	32.92
10	---	---	34.12	32.53	31.92	33.40	34.39	33.95	32.89	33.60	33.25	33.80
11	---	---	34.47	33.19	31.87	33.29	34.91	34.15	32.87	33.74	33.27	32.82
12	---	---	34.00	32.92	31.86	33.63	34.70	33.71	33.37	33.36	33.14	33.35
13	---	---	34.08	32.28	32.13	33.98	34.90	33.65	33.34	33.37	33.18	33.25
14	---	---	34.39	32.15	31.96	33.92	34.17	33.65	33.26	33.81	33.61	33.42
15	---	---	35.00	32.76	32.26	34.12	34.17	34.17	32.80	33.74	33.67	33.49
16	---	---	34.54	32.19	32.64	34.00	34.80	34.44	32.91	33.84	33.59	32.93
17	---	---	34.29	32.29	32.74	33.76	34.16	34.54	32.74	33.25	33.59	32.88
18	---	---	34.60	32.81	32.15	33.65	34.83	34.59	32.96	33.66	33.18	33.04
19	---	---	34.74	32.90	32.15	33.71	34.89	34.03	32.92	33.73	33.24	33.27
20	---	34.02	34.76	32.82	32.16	33.68	34.89	33.97	33.55	33.21	33.01	33.56
21	---	34.42	35.00	32.15	32.47	34.32	34.69	34.43	33.58	33.63	33.28	33.05
22	---	34.24	35.12	32.08	32.89	34.47	34.18	34.17	33.48	33.76	33.79	33.05
23	---	34.71	35.19	32.16	32.95	34.01	34.20	34.26	33.11	33.32	33.92	32.94
24	---	34.71	34.75	32.02	32.39	34.00	34.80	34.25	33.17	33.74	33.47	33.88
25	---	33.96	34.58	32.25	32.40	33.96	34.82	34.11	33.26	34.07	33.66	33.65
26	---	33.92	35.27	32.60	32.34	34.06	34.95	33.96	33.32	33.87	33.74	33.40
27	---	33.87	35.22	32.30	32.58	34.04	34.32	33.20	33.77	33.34	33.54	33.61
28	---	33.80	35.08	32.31	32.86	34.67	34.81	32.95	33.30	33.47	33.61	32.96
29	---	34.33	35.11	32.62	32.78	34.62	34.27	32.98	33.17	33.82	34.13	33.11
30	---	34.38	35.23	32.02	---	34.13	34.84	33.49	33.14	33.37	34.26	33.30
31	---	---	35.33	32.54	---	34.39	---	33.20	---	33.41	33.73	---
MEAN	---	34.21	34.56	33.01	32.38	33.73	34.63	33.97	33.16	33.57	33.56	33.40

WTR YR 1992 MEAN 33.63 HIGHEST 31.78 FEB. 12, 1992 LOWEST 35.42 DEC. 31, 1991



## GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

182010064472600. Local number, 1.

LOCATION.--Lat 18°20'10", long 64°47'26", Hydrologic Unit 21020001, 0.40 mi sotheast from Cruz Bay plaza, 0.30 mi southwest of Caneel Hill, and 0.32 mi northeast of the Government House at Cruz Bay. Owner: U.S. Virgin Islands Government, National Park Services, Name: NPS-2 (Cruz Bay).

AQUIFER.--Volcanic rocks of Cretaceous Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), 4 in (0.10 m) cased, 0-20 ft (0-6.10 m), open hole 20-99 ft (6.10-30.2 m). Depth 99 ft (30.2 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 60 ft (18.3 m) above mean sea level, from topographic map.  
Measuring point: Top of 4 in (0.10 m) casing, 4.10 ft (1.25 m) above old land-surface datum after 1.40 ft (0.43 m) land-fall and 2.70 ft (0.82 m) casing extension occurred. Prior to June 29, 1983, top of 4 in (0.10 m) casing, 1.40 ft (0.43 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping nearby well.

PERIOD OF RECORD.--May 1964, discontinued. June 30, 1983 to current year.

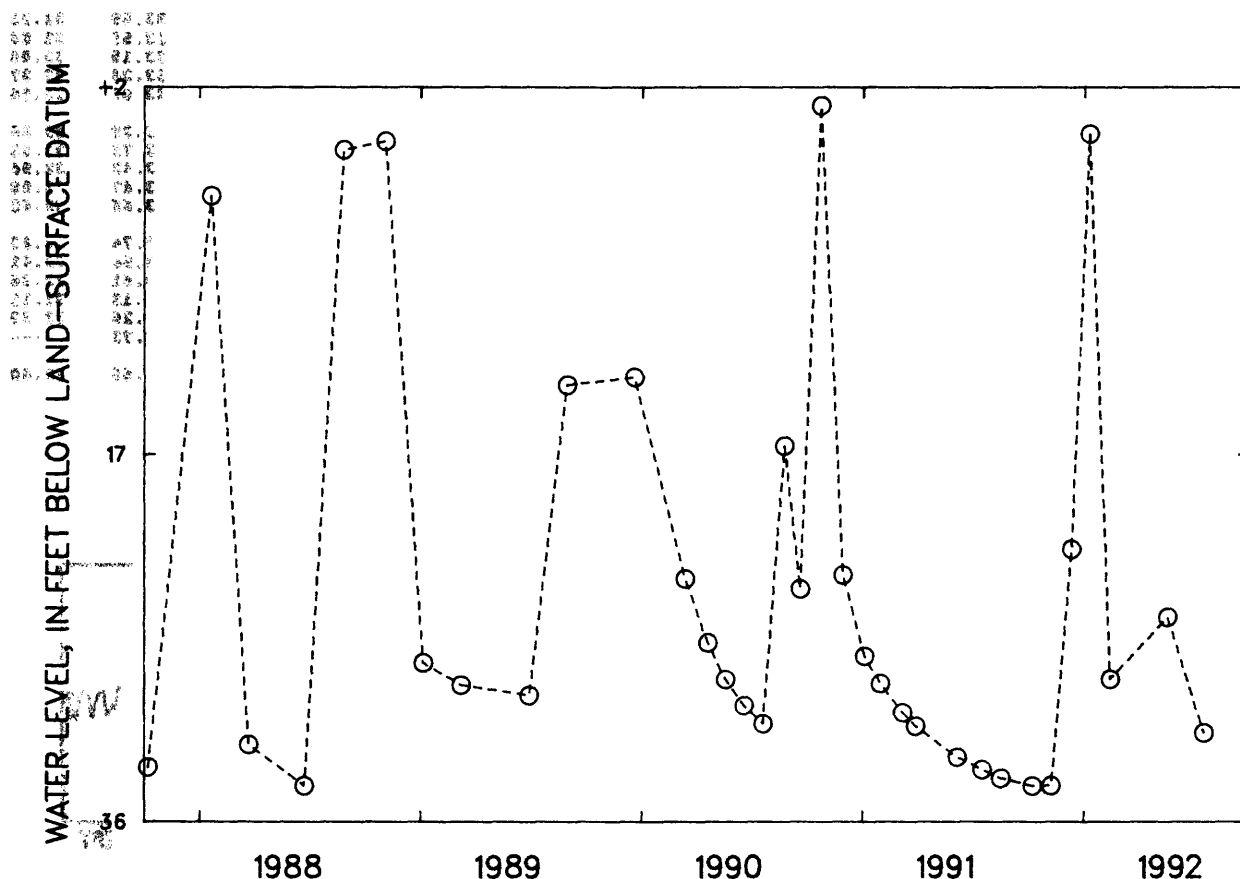
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, +1.41 ft (0.43 m) above land-surface datum, May 1, 1966; lowest water level measured, 42.56 ft (12.98 m) below land-surface datum, Aug. 30, 1967.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level
Oct. 8	34.14	Dec. 11	21.90	Feb. 13	28.61
Nov. 18	34.12	Jan. 9	0.42	May 18	25.40

WATER YEAR 1992 HIGHEST 0.42 JAN. 9, 1992 LOWEST 34.14 OCT. 8, 1991

+ Above land-surface datum.



WATER YEAR

182109064460300. Local number, 2.

**AQUIFER.--**Volcanic rocks of Cretaceous Age.

**INSTRUMENTATION.**--Monthly measurement with chalked steel tape by USGS personnel.

REMARKS.--Active water supply well for recreation facilities at Trunk Bay.

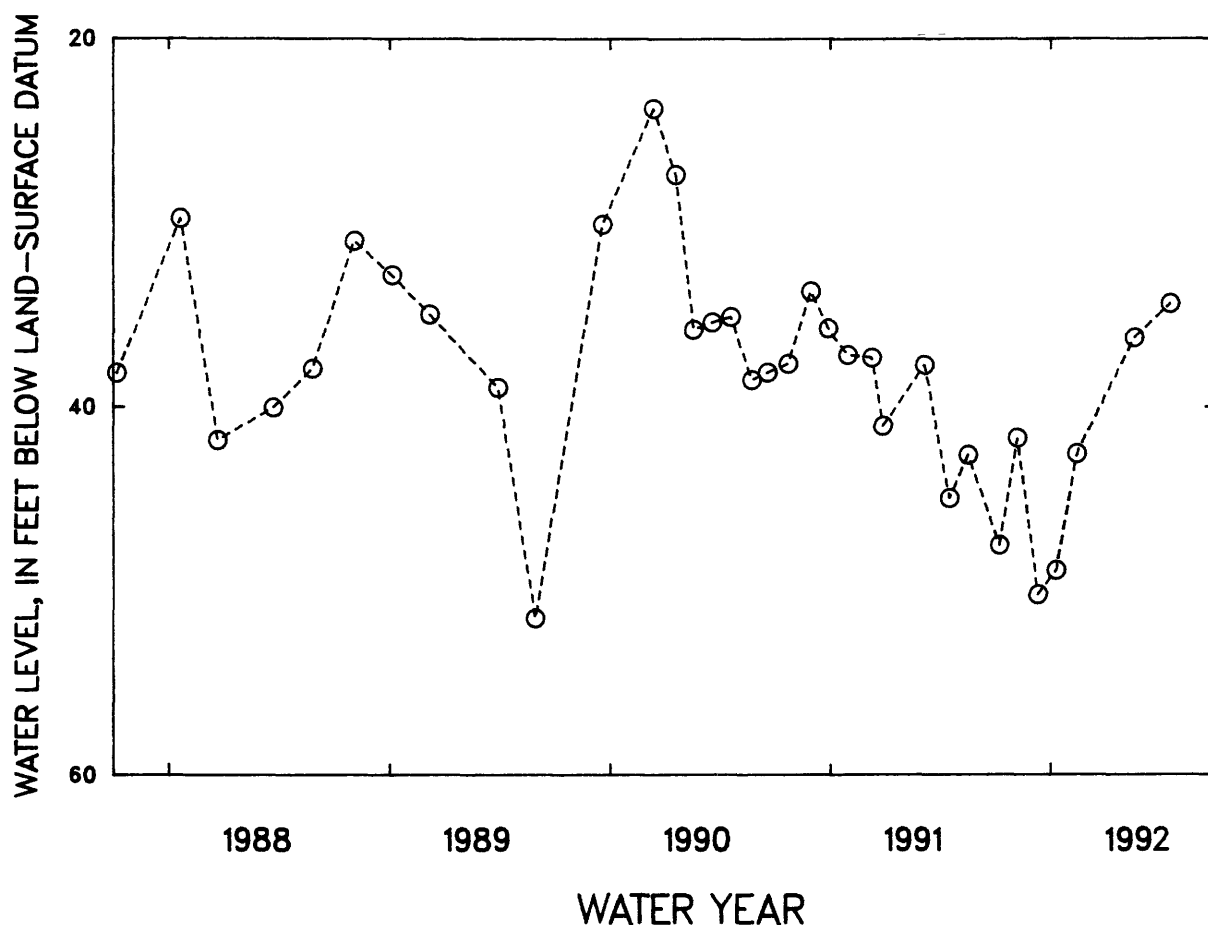
**PERIOD OF RECORD.**--August 1964 to December 1969, discontinued. March 1982 to current year.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 8	47.50	Dec. 11	50.18	Feb. 13	42.53	July 16	34.40
Nov. 7	41.68	Jan. 10	48.86	May 18	36.24		

<b>WATER YEAR 1992</b>	<b>HIGHEST</b>	<b>34.40</b>	<b>JULY 16, 1992</b>	<b>LOWEST</b>	<b>250.18</b>	<b>DEC. 11, 1991</b>
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a Pumping.



## GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS1

102116064451000. Local number, 3.

LOCATION.--Lat 18°21'16", long 64°45'10", Hydrologic Unit 21020001, 3.08 mi northeast of Cruz Bay plaza, 2.62 mi northwest of Coral Bay, and 0.95 mi northwest of Mamey Peak. Owner: U.S. Virgin Islands Government, National Park Service, Name: NPS-6 (Cinnamon Bay).

AQUIFER.--Volcanic rocks of Cretaceous Age.

WELL CHARACTERISTICS.--Drilled water-table abandoned production well, diameter 6-in (0.15 m), cased 0-51 ft (0-15.55 m), open hole 51-70 ft (15.55-21.34 m). Depth 70 ft (21.34 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 60 ft (18.3 m) above mean sea level, from topographic map.

Measuring point: Hole on 6 in (0.15 m) casing, 2.00 ft (0.61 m) above land-surface datum. Prior to June 29, 1983, top of 6 in (0.15 m) casing at land-surface datum.

REMARKS.--Recording observation well.

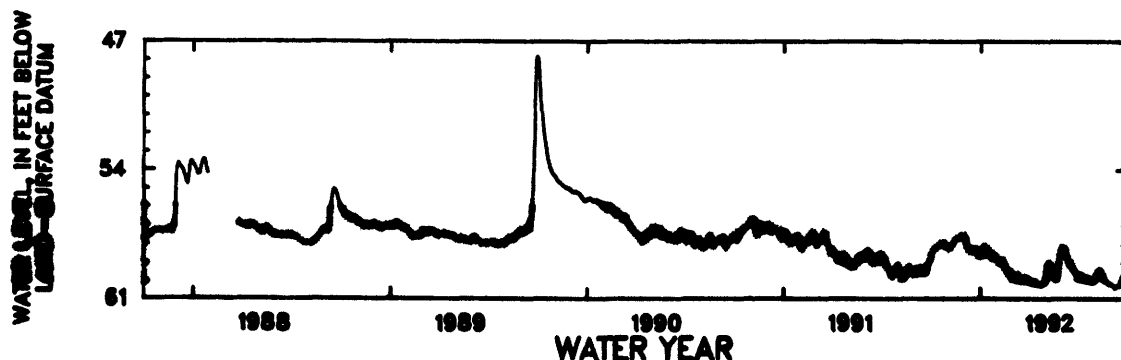
PERIOD OF RECORD.--August 1964 to December 1969, discontinued. March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 41.12 ft (12.54 m) below land-surface datum, Aug. 15, 1969; lowest water level recorded, 63.15 ft (19.25 m) below land-surface datum, July 1, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58.67	58.16	57.53	58.62	58.80	59.65	59.94	59.71	58.11	59.71	59.75	60.21
2	58.61	58.16	57.53	58.62	58.75	59.71	59.94	59.54	58.14	59.67	59.71	60.24
3	58.54	58.16	57.64	58.60	58.83	59.73	59.94	59.26	58.21	59.71	59.63	60.26
4	58.49	58.15	57.77	58.57	58.87	59.73	59.95	59.01	58.24	59.68	59.57	60.30
5	58.43	58.17	57.89	58.53	58.88	59.72	60.00	58.97	58.28	59.71	59.51	60.34
6	58.34	58.24	57.98	58.45	58.88	59.72	60.04	58.97	58.35	59.70	59.45	60.38
7	58.29	58.19	58.09	58.27	58.88	59.74	60.06	58.97	58.45	59.63	59.41	60.38
8	58.26	58.11	58.18	58.18	58.91	59.76	60.07	59.01	58.52	59.70	59.38	60.37
9	58.22	58.06	58.24	58.07	58.96	59.69	60.05	59.07	58.60	59.75	59.36	60.33
10	58.20	58.01	58.24	58.12	58.87	59.59	60.01	59.14	58.69	59.79	59.34	60.30
11	58.16	57.94	58.20	58.17	58.82	59.60	59.99	59.22	58.78	59.85	59.41	60.27
12	58.13	57.89	58.19	58.22	58.79	59.65	59.98	59.29	58.86	59.91	59.48	60.25
13	58.10	57.85	58.20	58.26	58.86	59.74	60.04	59.36	58.95	59.86	59.55	60.25
14	58.08	57.83	58.19	58.30	58.94	59.77	60.06	59.42	58.97	59.79	59.61	60.26
15	58.06	57.77	58.26	58.35	59.01	59.80	60.11	59.48	58.96	59.76	59.69	60.28
16	58.06	57.73	58.33	58.43	59.07	59.82	60.14	59.54	58.95	59.79	59.74	60.28
17	58.05	57.70	58.27	58.49	59.16	59.85	60.17	59.59	58.94	59.87	59.78	60.18
18	58.05	57.67	58.24	58.56	59.24	59.85	60.18	59.64	58.93	59.89	59.86	60.07
19	58.04	57.66	58.22	58.62	59.32	59.82	60.19	59.62	59.05	59.91	59.93	59.96
20	58.02	57.65	58.28	58.54	59.40	59.79	60.20	59.70	59.16	59.83	59.98	59.86
21	58.00	57.64	58.26	58.49	59.46	59.78	60.22	59.73	59.23	59.83	60.02	59.77
22	57.97	57.64	58.23	58.48	59.52	59.78	60.28	59.72	59.31	59.91	60.06	59.71
23	57.94	57.63	58.25	58.45	59.59	59.79	60.20	59.64	59.39	59.98	60.10	59.73
24	57.92	57.63	58.28	58.55	59.54	59.78	60.14	59.52	59.46	60.04	60.13	59.74
25	57.90	57.61	58.33	58.64	59.50	59.77	60.15	59.16	59.53	60.08	60.17	59.74
26	57.90	57.58	58.37	58.71	59.47	59.77	60.12	58.80	59.60	60.11	60.19	59.75
27	57.89	57.58	58.43	58.66	59.44	59.79	60.05	58.57	59.68	60.07	60.21	59.74
28	57.89	57.58	58.50	58.61	59.51	59.80	59.99	58.42	59.73	60.02	60.16	59.73
29	58.01	57.56	58.55	58.57	59.59	59.83	59.92	58.27	59.77	59.97	60.15	59.73
30	58.11	57.54	58.61	58.66	---	59.88	59.82	58.21	59.75	59.91	60.18	59.73
31	58.16	---	58.58	58.74	---	59.93	---	58.16	---	59.82	60.21	---
MEAN	58.14	57.84	58.19	58.47	59.13	59.76	60.06	59.18	58.95	59.85	59.80	60.07

WTR YR 1992 MEAN 59.12 HIGHEST 57.52 DEC. 2, 1991 LOWEST 60.38 SEPT. 6-8, 1992



## GROUND-WATER LEVELS

583

## ST. JOHN, U.S. VIRGIN ISLANDS

182042064454500. Local number, 5.

LOCATION.--Lat 18°20'42", long 64°45'45", Hydrologic Unit 21020001, 2.30 mi northwest of Cruz Bay plaza, 0.30 mi south of Peter Peak, and 0.65 mi east of Susannahberg on Center Line road. Owner: U.S. Virgin Islands Government, Name: DPW-6. (Susannahberg)

AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth 70 ft (21.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch, discontinued on April 9, 1992. Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 640 ft (195 m) above mean sea level, from topographic map.

Measuring point: Top of 6 in (0.15 m) casing, 1.60 ft (0.49 m) above land-surface datum. Prior to June 20, 1993, top of 6 in (0.15 m) casing, 1.30 ft (0.40 m) above land-surface datum.

REMARKS.--Recording observation well. Automatic digital recorder discontinued on April 9, 1992.

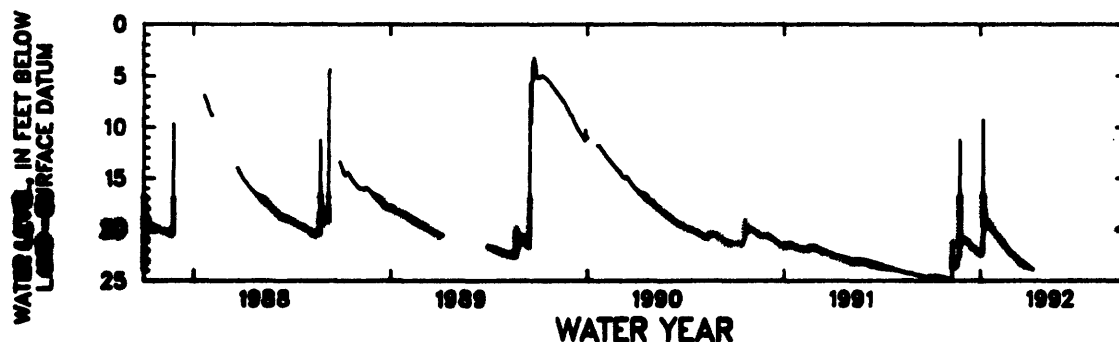
PERIOD OF RECORD.--September 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.33 ft (0.40 m) below land-surface datum, May 10, 1986; lowest water level recorded, 24.05 ft (7.57 m) below land-surface datum, Nov. 8, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.61	24.70	20.07	22.16	20.64	22.35	23.60	---	---	---	---	---
2	24.59	24.80	20.07	22.20	20.73	22.40	23.71	---	---	---	---	---
3	24.59	24.82	20.90	22.26	20.79	22.45	23.75	---	---	---	---	---
4	24.57	24.83	20.92	22.30	20.84	22.50	23.79	---	---	---	---	---
5	24.56	24.84	20.95	22.34	20.91	22.55	23.83	---	---	---	---	---
6	24.55	24.85	20.96	9.19	20.97	22.62	23.07	---	---	---	---	---
7	24.53	24.85	20.90	17.61	21.01	22.66	23.91	---	---	---	---	---
8	24.51	24.04	21.04	19.37	21.08	22.72	23.94	---	---	---	---	---
9	24.50	24.84	21.09	19.50	21.14	22.77	---	---	---	---	---	---
10	24.50	21.06	21.14	19.67	21.20	22.78	---	---	---	---	---	---
11	24.50	23.92	21.23	19.65	21.26	22.84	---	---	---	---	---	---
12	24.50	23.85	21.33	19.59	21.33	22.88	---	---	---	---	---	---
13	24.50	23.60	21.39	19.51	21.39	22.95	---	---	---	---	---	---
14	24.50	23.36	21.44	19.46	21.45	22.99	---	---	---	---	---	---
15	24.51	23.16	21.50	19.42	21.52	23.03	---	---	---	---	---	---
16	24.54	23.00	21.56	19.40	21.60	23.06	---	---	---	---	---	---
17	24.57	22.85	21.60	19.40	21.66	23.10	---	---	---	20.93	---	---
18	24.57	22.76	21.64	19.43	21.74	23.13	---	21.70	---	---	---	---
19	24.59	22.69	21.67	19.52	21.79	23.16	---	---	---	---	---	---
20	24.61	22.65	21.73	19.64	21.84	23.19	---	---	---	---	---	---
21	24.61	22.65	21.77	19.75	21.90	23.22	---	---	---	---	---	---
22	24.65	22.65	21.80	19.86	21.95	23.26	---	---	---	---	---	---
23	24.66	22.65	21.83	19.97	22.01	23.31	---	---	---	---	---	---
24	24.67	11.21	21.87	20.06	22.06	23.34	---	---	---	---	---	---
25	24.69	21.32	21.90	20.13	22.10	23.37	---	---	---	---	---	---
26	24.70	21.24	21.94	20.23	22.14	23.40	---	---	---	---	---	---
27	24.73	21.16	21.99	20.31	22.19	23.44	---	---	---	---	---	---
28	24.74	21.05	22.01	20.39	22.24	23.50	---	---	---	---	---	---
29	24.75	20.95	22.05	20.47	22.29	23.54	---	---	---	---	---	---
30	24.76	20.88	22.10	20.55	---	23.59	---	---	---	---	---	---
31	24.76	---	22.13	20.60	---	23.64	---	---	---	---	---	---
MEAN	24.60	22.74	21.49	19.80	21.51	23.02	23.81	---	---	---	---	---

WTR YR 1992 MEAN 22.27 HIGHEST 6.24 JAN. 6, 1992 LOWEST 24.05 NOV. 8, 1991



## GROUND-WATER LEVELS

## ST. JOHN, U.S. VIRGIN ISLANDS

182044064454600. Local number, 6.

LOCATION.--Lat 18°20'44", long 64°45'46", Hydrologic Unit 21020001, 2.27 mi northeast of Cruz Bay plaza, 0.28 mi southwest of Peter Peak, and 0.58 mi northeast of Susannaberg on Center Line road. Owner: U.S. Virgin Islands Government, Name: DPW-5.

AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth 145 ft (44.2 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 640 ft (195 m) above mean sea level, from topographic map. Measuring point: Top of 6 in (0.15 m) casing, 1.80 ft (0.55 m) above land-surface datum. Prior May 18, 1992, top of 6 in (0.15 m) casing, 1.50 ft (0.46 m) above land-surface datum. Prior Oct. 23, 1990, top of 6 in (0.15 m) casing, 1.40 ft (0.43 m) above land-surface datum.

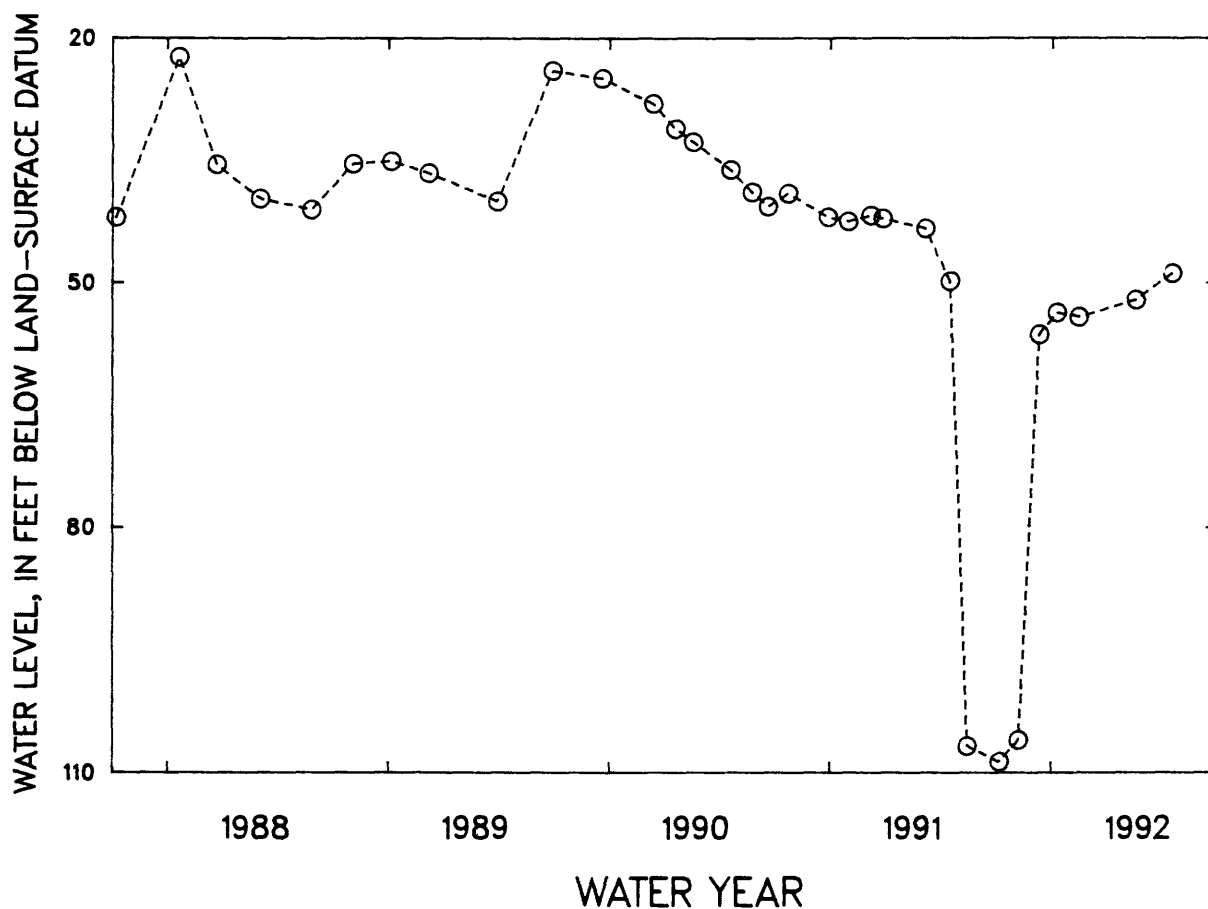
REMARKS.--Observation well. Water levels affected by pumping.

PERIOD OF RECORD.--September 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.85ft (5.74m) below land-surface datum, July 2, 1986; lowest water level measured, a108.6 ft (33.1 m) below land-surface datum, Oct. 8, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 8	a108.65	Dec. 11	56.31	Feb. 14	54.20	July 17	48.87
Nov. 8	a105.98	Jan. 9	53.66	May 18	52.09		
WATER YEAR 1992      HIGHEST 48.87 JULY 17, 1992      LOWEST a108.6 OCT. 8, 1991							
a Pumping.							



## GROUND-WATER LEVELS

585

## ST. JOHN, U.S. VIRGIN ISLANDS

182044064454800. Local number, 7.

LOCATION.--Lat 18°20'44, long 64°45'48", Hydrologic Unit 21020001, 2.18 mi northeast of Cruz Bay plaza, 0.31 mi southwest of Peter Peak, and 0.48 mi northeast of Susannaberg on Ceter Line road. Owner: U.S. Virgin Islands Government, Name: DPW-4.

AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth 60 ft (18.3 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 640 ft (195 m) above mean sea level, from topographic map.

Measuring point: Top of 6 in (0.15 m) casing, 1.30 ft (0.40 m) above land-surface datum. Prior May 18, 1992, top of 6 in (0.15 m) casing, 0.60 ft (0.18 m) above land-surface datum.

REMARKS.--Observation well.

PERIOD OF RECORD.--September 1982 to current year.

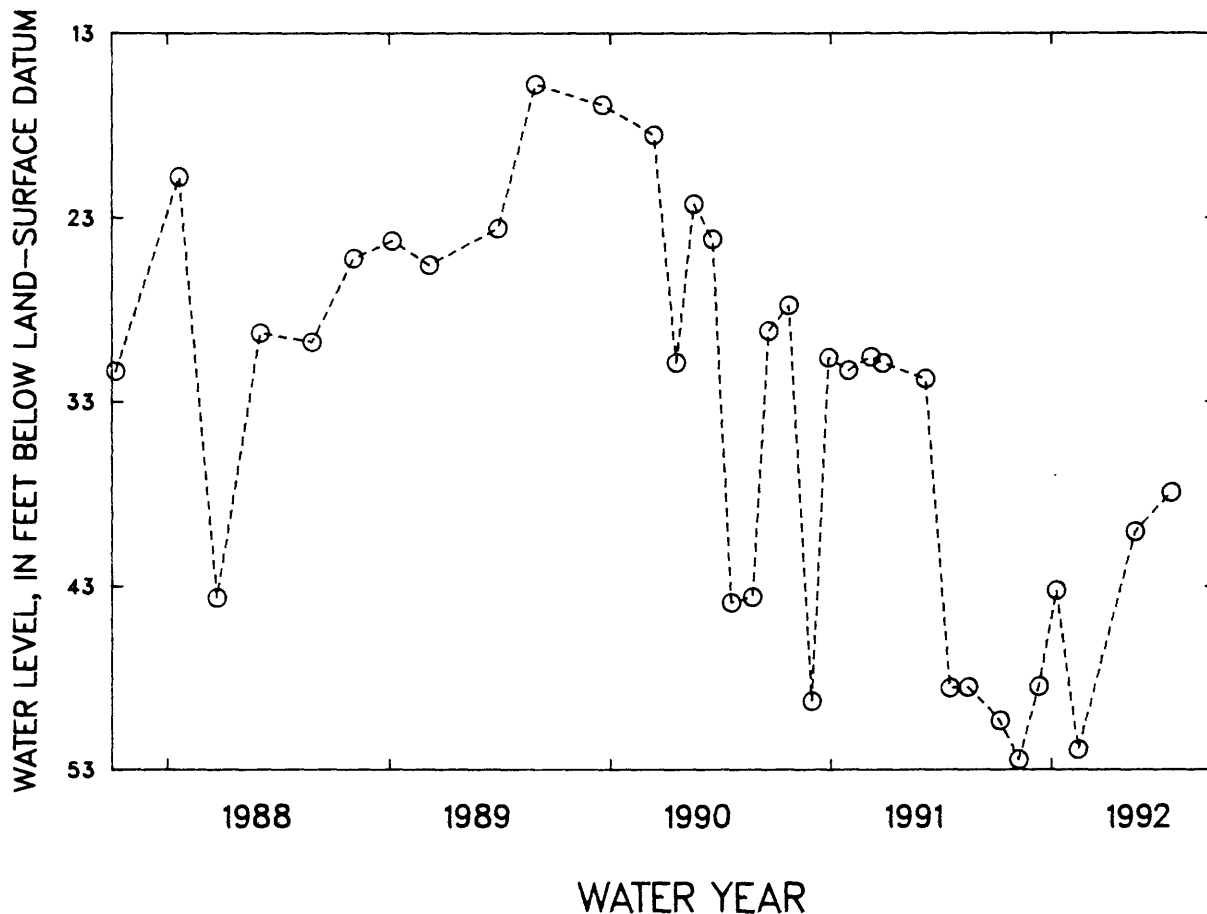
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.48 ft (4.41 m) below land-surface datum, July 2, 1986; lowest water level measured, 52.45 ft (15.98 m) below land-surface datum, Nov. 8, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 8	50.32	Dec. 11	48.45	Feb. 14	50.90	July 17	37.91
Nov. 8	52.45	Jan. 9	43.22	May 18	40.03		

WATER YEAR 1992      HIGHEST 37.91 JULY 17, 1992      LOWEST 52.45 NOV. 8, 1992

a Pumping.



## GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

192044064454900. Local number, 8.

LOCATION.--Lat 18°20'44", long 64°45'49", Hydrologic Unit 21020001, 2.15 mi northeast of Crus Bay plaza, 0.35 mi southwest of Peter Peak, and 0.45 mi northeast of Susannaberg on Center Line road. Owner: U.S. Virgin Islands Government, Name: DFW-3.

AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth 110 ft (33.5 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 620 ft (189 m) above mean sea level, from topographic map. Prior to this report, elevation used was 640 ft (195 m). Measuring point: Top of 6 in (0.15 m) casing, 1.80 ft (0.55 m) above land-surface datum.

REMARKS.--Observation well.

PERIOD OF RECORD.--September 1982 to current year.

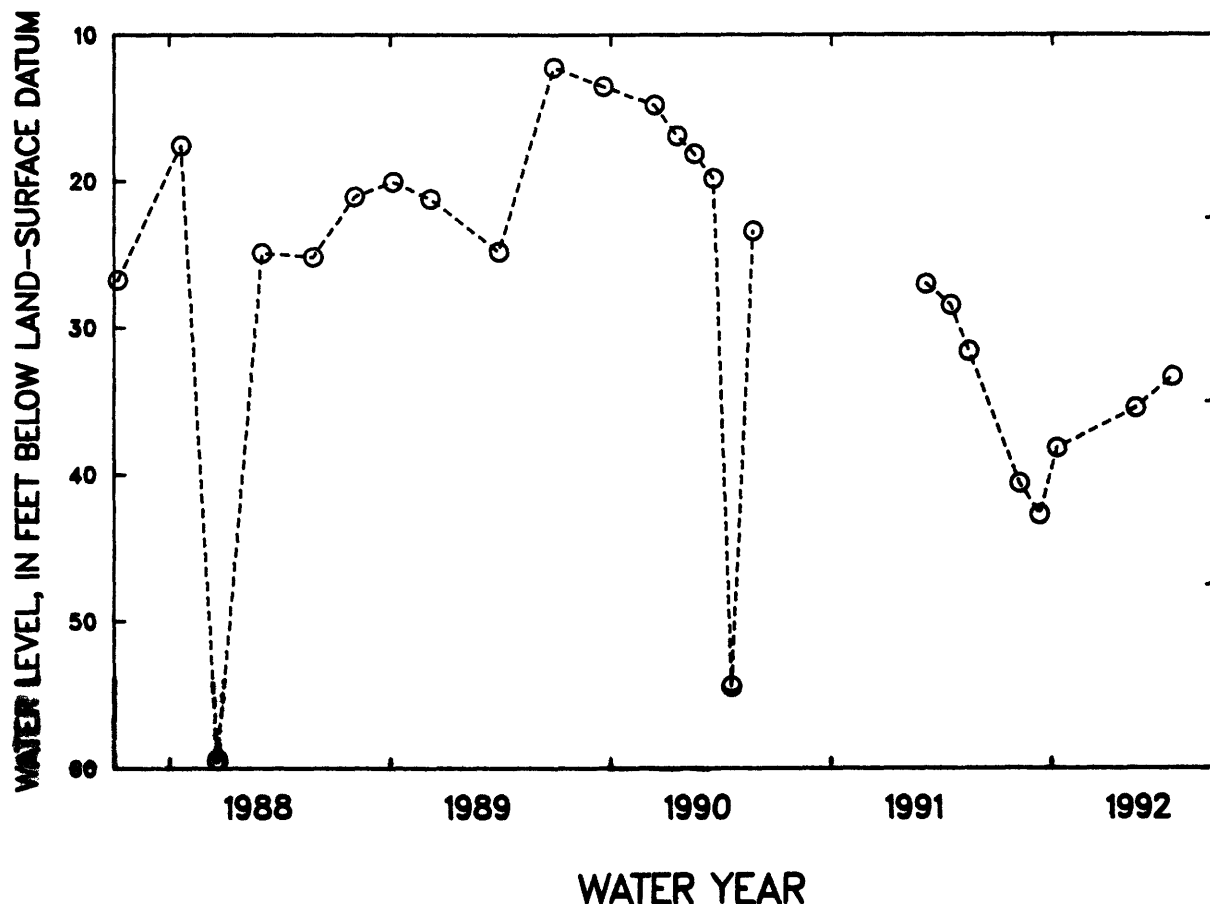
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.17ft (3.71 m) below land-surface datum, July 2, 1986; lowest water level measured, 69.58 ft (21.21 m) below land-surface datum, Feb. 27, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Nov. 9	40.58	Jan. 9	38.18	May 18	35.44	July 17	33.30
Dec. 11	42.72						

WATER YEAR 1992 HIGHEST 33.30 JULY 17, 1992 LOWEST 42.72 DEC. 11, 1991

a Pumping.





GROUND-WATER LEVELS  
ST. JOHN, U.S. VIRGIN ISLANDS

587

102044064455000. Local number, 9.

LOCATION.--Lat 18°20'44", long 64°45'50", Hydrologic Unit 21020001, 2.05 mi northeast of Cruz Bay plaza, 0.41 mi southwest of Peter Peak, and 0.39 mi east of Susannaberg on Center Line road. Owner: U.S. Virgin Islands Government, Name: DPM-2.

AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth 65 ft (19.8 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 620 ft (189 m) above mean sea level, from topographic map. Prior to this report, elevation used was 640 ft (195 m). Measuring point: Top of 6 in (0.15 m) casing, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Observation well.

PERIOD OF RECORD.--September 1982 to current year.

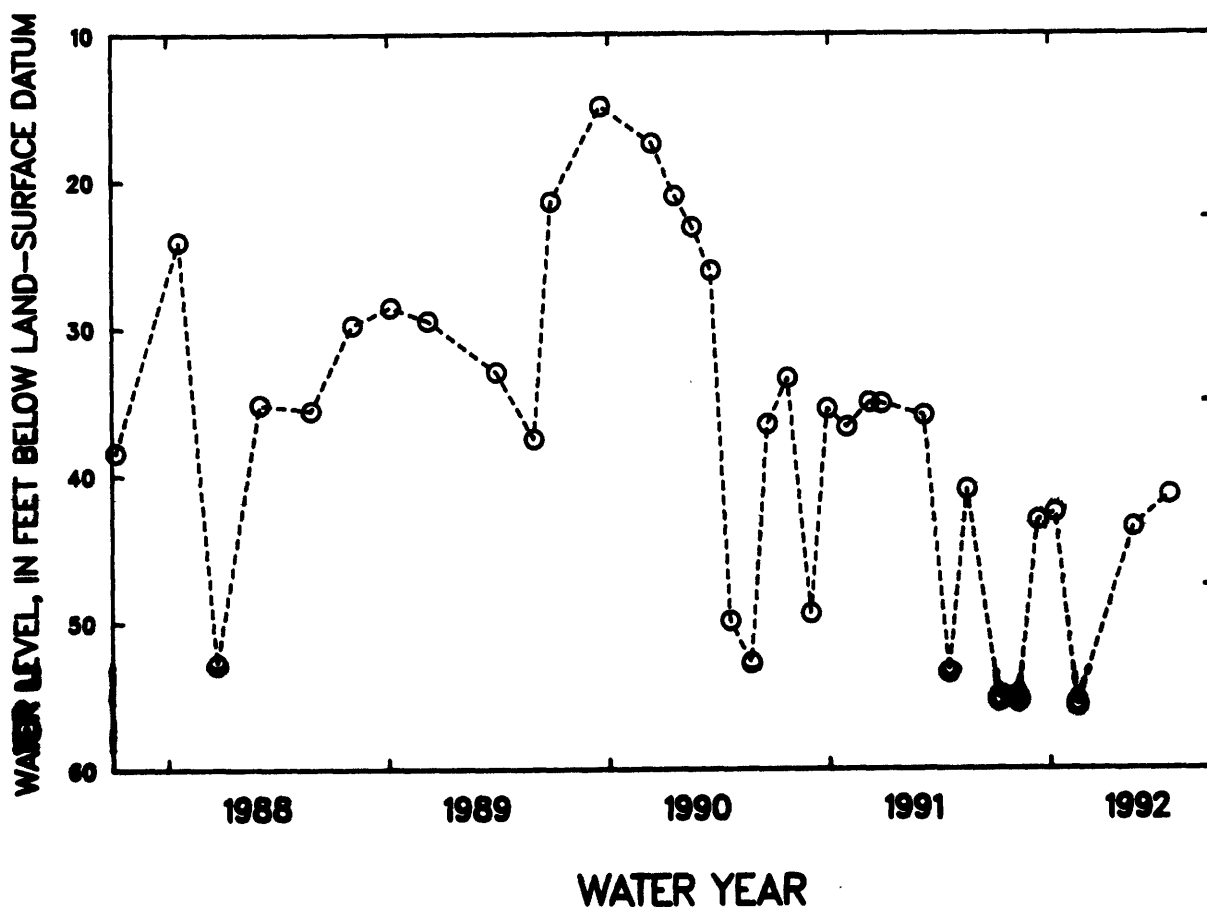
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.93 ft (4.55 m) below land-surface datum, Dec. 19, 1989; lowest water level measured, a55.67 ft (a16.9 m) below land-surface datum, Feb. 14, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 8	a55.31	Dec. 11	43.88	Feb. 14	a55.67	July 17	41.34
Nov. 8	a55.35	Jan. 9	42.55	May 18	43.54		

WATER YEAR 1992      HIGHEST 41.34 JULY 17, 1992      LOWEST a55.67 FEB. 14, 1992

a Pumping.



## GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

182044064455200. Local number, 10.

LOCATION.--Lat 18°20'44", long 64°45'52", Hydrologic Unit 21020001, 2.00 mi northeast of Cruz Bay plaza, 0.46 mi southwest of Peter Peak, and 0.35 mi east of Susannaberg on Center Line road. Owner: U.S. Virgin Islands Government, Name: DPW-1.

AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth 60 ft (18.3 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum about 610 ft (186 m) above mean sea level. Prior to this report, elevation used was 640 ft (195 m). Measuring point: Top of 6 in (0.15 m) casing, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

PERIOD OF RECORD.--September 1982 to current year.

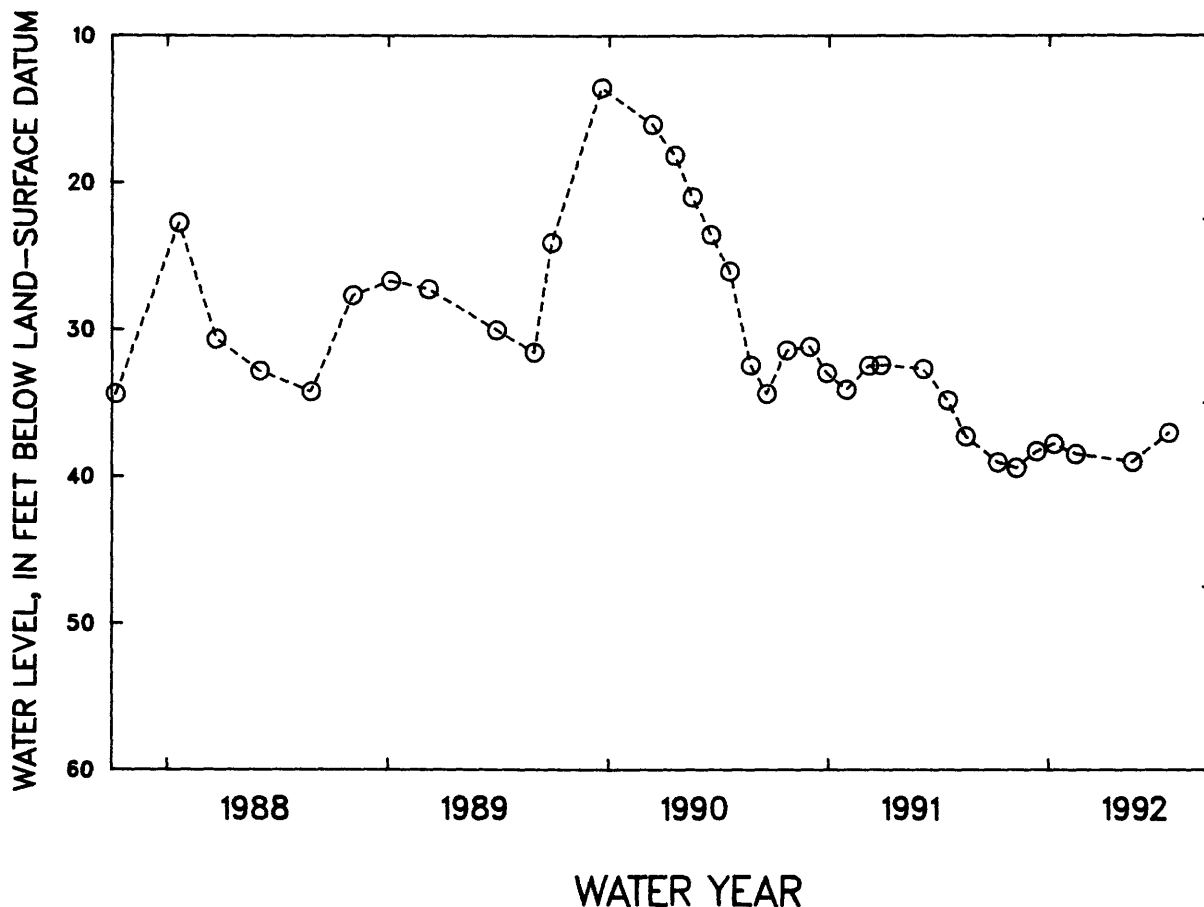
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.54 ft (4.13 m) below land-surface datum, Dec. 19, 1989; lowest water level measured, 39.42 ft (12.01 m) below land-surface datum, Nov. 8, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATIONS

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Oct. 8	39.05	Dec. 11	38.30	Feb. 14	38.50	July 17	37.07
Nov. 8	39.42	Jan. 9	37.81	May 18	39.02		

WATER YEAR 1992      HIGHEST 37.07 JULY 17, 1992      LOWEST 39.42 DEC. 11, 1991

a Pumping.



## GROUND-WATER LEVELS

589

## ST. JOHN, U.S. VIRGIN ISLANDS

181956064464500. Local number, 11.

LOCATION.--Lat 18°19'56", long 64°46'45", Hydrologic Unit 21020001, 1.05 mi southeast of Cruz Bay plaza, 0.25 mi southeast of Bethany Church, and 0.48 mi southeast of Margaret Hill. Owner: U.S. Virgin Islands Government, Name: Guinea Gut Well.

AQUIFER.--Louisenhoj Formation (Donnelly, 1959).

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 85 ft (25.9 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 280 ft (85.36 m) above mean sea level, from topographic map.

Measuring point: Bottom of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 1.50 ft (0.46 m) above land-surface datum. Prior to June 28, 1983, top of 6 in (0.15 m) casing, 1.80 ft (0.55 m) above land-surface datum.

REMARKS.--Recording observation well.

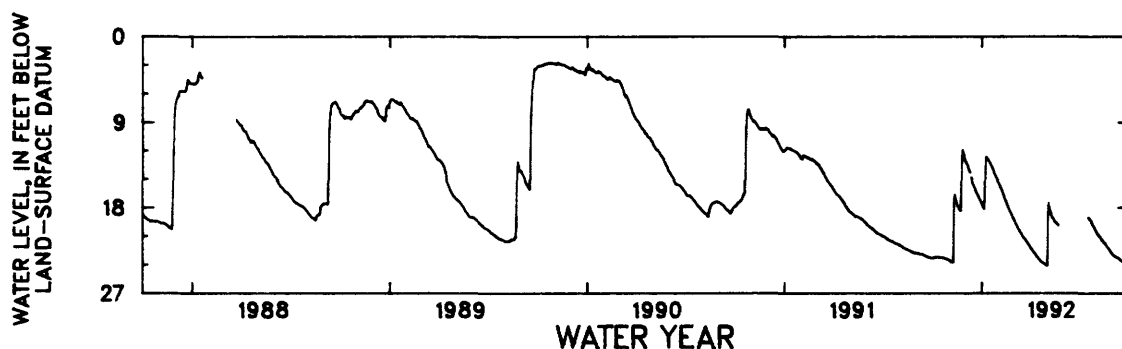
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.71 ft (0.79 m) below land-surface datum, Jan. 3, 1990; lowest water level recorded, 25.25 ft (7.70 m) below land-surface datum, Oct. 2, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.29	23.53	13.04	17.61	15.40	19.32	22.29	24.13	---	---	20.64	23.00
2	23.28	23.57	13.21	17.73	15.53	19.44	22.38	22.85	---	---	20.75	23.05
3	23.27	23.61	13.34	17.88	15.66	19.55	22.46	18.58	---	---	20.82	23.08
4	23.25	23.65	13.44	18.02	15.80	19.67	22.54	17.48	---	---	20.89	23.12
5	23.24	23.69	13.58	18.13	15.91	19.80	22.61	17.94	---	---	20.98	23.16
6	23.22	23.73	13.72	17.33	16.04	19.92	22.70	18.19	---	---	21.04	23.19
7	23.21	23.74	13.87	13.88	16.11	20.04	22.78	18.42	---	---	21.11	23.22
8	23.21	23.70	14.04	12.65	16.31	20.16	22.84	18.60	---	---	21.18	23.24
9	23.21	23.69	14.18	12.69	16.49	20.27	22.91	18.79	---	---	21.25	23.27
10	23.20	19.82	14.34	12.77	16.66	20.34	22.99	18.90	---	---	21.32	23.31
11	23.19	16.88	---	12.88	16.81	20.43	23.07	19.02	---	---	21.41	23.34
12	23.18	16.61	14.86	13.00	16.98	20.55	23.14	19.12	---	---	21.48	23.38
13	23.18	17.00	15.06	13.06	17.14	20.66	23.20	19.22	---	---	21.56	23.43
14	23.18	17.23	15.22	13.15	17.25	20.77	23.28	19.31	---	---	21.63	23.49
15	23.21	17.41	15.39	13.26	17.40	20.86	23.36	19.43	---	---	21.69	23.55
16	23.23	17.57	15.55	13.38	17.55	20.96	23.44	19.53	---	---	21.76	23.59
17	23.25	17.71	15.69	13.51	17.70	21.06	23.51	19.56	---	19.08	21.84	23.62
18	23.27	17.86	15.85	13.62	17.85	21.13	23.58	19.59	---	19.14	21.92	23.66
19	23.27	17.99	15.98	13.76	18.01	21.19	23.65	19.66	---	19.22	21.99	23.68
20	23.27	18.10	16.11	13.89	18.14	21.25	23.70	19.74	---	19.31	22.08	23.70
21	23.28	18.20	16.27	14.01	18.27	21.33	23.73	19.79	---	19.39	22.15	23.72
22	23.29	18.28	16.37	14.16	18.39	21.42	23.77	19.85	---	19.50	22.22	23.75
23	23.31	18.37	16.49	14.32	18.50	21.50	23.81	---	---	19.63	22.31	23.77
24	23.32	17.06	16.64	14.49	18.59	21.58	23.84	---	---	19.74	22.39	23.81
25	23.33	12.99	16.77	14.60	18.72	21.66	23.87	---	---	19.86	22.47	23.85
26	23.36	11.86	16.90	14.71	18.84	21.75	23.94	---	---	19.97	22.56	23.89
27	23.38	12.03	17.02	14.85	18.96	21.84	23.97	---	---	20.07	22.63	23.92
28	23.40	12.31	17.10	14.96	19.08	21.94	24.01	---	---	20.18	22.71	23.95
29	23.43	12.59	17.21	15.08	19.18	22.03	24.05	---	---	20.29	22.80	23.97
30	23.46	12.84	17.35	15.21	---	22.11	24.11	---	---	20.40	22.88	23.98
31	23.49	---	17.49	15.31	---	22.22	---	---	---	20.53	22.95	---
MEAN	23.28	18.45	15.40	14.64	17.35	20.86	23.32	19.44	---	19.75	21.79	23.52

WTR YR 1992 MEAN 19.83 HIGHEST 11.82 NOV. 26, 1991 LOWEST 24.14 MAY 1-2, 1992



## GROUND-WATER LEVELS

## ST. JOHN, U.S. VIRGIN ISLANDS

182110064430000. Local number, 12.

LOCATION.--Lat 18°21'18", long 64°43'00", Hydrologic Unit 21020001, 0.20 mi northwest of Coral Bay Church, 1.05 mi southeast of King Hill, and 8.50 mi west of road 10. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA, Coral Bay, VISO-2.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), 0-70 ft (0-21.3 m), cased 4 in (0.10 m), 0-66 ft (0-20.1 m), screened 26-66 ft (7.26-20.1 m). Depth 66 ft (20.1 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 30 ft (9.14 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.10 ft (0.94 m) above land-surface datum.

REMARKS.--Recording observation well. Drilled on February 1991.

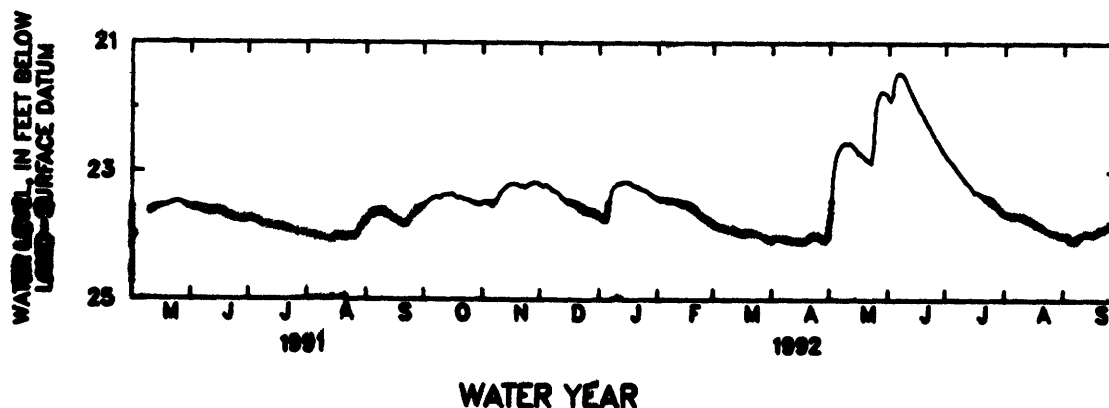
PERIOD OF RECORD.--May 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 21.47 ft (6.54 m) below land-surface datum, June 5-8, 1992; lowest water level recorded, 24.11 ft (7.35 m) below land-surface datum, Apr. 18-19, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.53	23.49	23.28	23.72	23.43	23.83	24.07	23.93	21.85	22.73	23.66	23.90
2	23.50	23.47	23.22	23.74	23.44	23.85	24.03	23.58	21.89	22.70	23.60	23.98
3	23.47	23.48	23.23	23.76	23.46	23.86	24.02	23.09	21.80	22.81	23.68	24.00
4	23.45	23.49	23.21	23.78	23.46	23.87	24.03	22.86	21.58	22.85	23.69	24.03
5	23.43	23.51	23.23	23.70	23.46	23.88	24.03	22.73	21.49	22.89	23.71	24.07
6	23.41	23.54	23.25	23.58	23.48	23.88	24.04	22.65	21.47	22.92	23.70	24.08
7	23.40	23.58	23.28	23.37	23.47	23.89	24.04	22.60	21.47	22.97	23.70	24.07
8	23.39	23.46	23.30	23.29	23.47	23.90	24.04	22.56	21.48	23.00	23.70	24.05
9	23.41	23.41	23.31	23.24	23.48	23.91	24.04	22.55	21.52	23.04	23.70	24.04
10	23.39	23.35	23.33	23.21	23.48	23.91	24.05	22.55	21.57	23.08	23.71	23.99
11	23.37	23.31	23.35	23.19	23.49	23.91	24.07	22.55	21.64	23.12	23.73	23.96
12	23.36	23.28	23.40	23.19	23.51	23.92	24.07	22.56	21.71	23.16	23.73	23.95
13	23.36	23.25	23.42	23.17	23.52	23.94	24.08	22.50	21.70	23.19	23.75	23.95
14	23.36	23.22	23.45	23.17	23.53	23.95	24.08	22.62	21.04	23.23	23.76	23.96
15	23.36	23.20	23.47	23.16	23.53	23.95	24.09	22.65	21.90	23.27	23.77	23.97
16	23.35	23.19	23.50	23.16	23.54	23.97	24.09	22.71	21.96	23.32	23.79	23.97
17	23.38	23.19	23.50	23.10	23.56	23.98	24.10	22.70	22.02	23.32	23.81	23.97
18	23.40	23.19	23.51	23.19	23.50	23.96	24.10	22.74	22.06	23.32	23.83	23.94
19	23.41	23.28	23.52	23.21	23.60	23.94	24.10	22.76	22.12	23.34	23.85	23.92
20	23.40	23.21	23.53	23.22	23.61	23.94	24.06	22.80	22.18	23.36	23.86	23.89
21	23.41	23.23	23.56	23.23	23.64	23.95	24.03	22.82	22.23	23.30	23.88	23.89
22	23.43	23.23	23.59	23.25	23.67	23.96	24.02	22.84	22.28	23.42	23.89	23.89
23	23.43	23.25	23.61	23.27	23.70	23.96	24.00	22.86	22.32	23.44	23.91	23.88
24	23.44	23.23	23.63	23.28	23.71	23.97	24.00	22.64	22.30	23.46	23.92	23.86
25	23.45	23.21	23.64	23.29	23.73	23.98	24.01	22.87	22.43	23.49	23.93	23.83
26	23.47	23.19	23.66	23.30	23.75	23.99	24.03	21.87	22.50	23.51	23.94	23.81
27	23.48	23.18	23.66	23.32	23.77	24.01	24.04	21.79	22.53	23.54	23.94	23.70
28	23.50	23.17	23.66	23.35	23.79	24.02	24.06	21.75	22.58	23.56	23.95	23.76
29	23.51	23.17	23.60	23.37	23.81	24.03	24.08	21.75	22.64	23.50	23.97	23.75
30	23.51	23.10	23.68	23.39	---	24.05	24.05	21.77	22.69	23.62	23.97	23.74
31	23.51	---	23.78	23.41	---	24.06	---	21.79	---	23.64	23.99	---
MEAN	23.43	23.30	23.46	23.35	23.57	23.94	24.05	22.57	22.00	23.24	23.81	23.93

WTR YR 1992 MEAN 23.39 HIGHEST 21.47 JUNE 5-8, 1992 LOWEST 24.11 APR. 18-19, 1992



## GROUND-WATER LEVELS

591

## ST. JOHN, U.S. VIRGIN ISLANDS

181950064422300. Local number, 13.

LOCATION.--Lat 18°19'50", long 64°42'23", Hydrologic Unit 21020001, 1.47 mi southeast of Coral Bay Church, 0.68 mi northeast of Minna Hill, and 0.10 mi west of Hwy 107 at Calabash Boom. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA, Calabash Boom, VISO-3.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), 0-110 ft (0-33.5 m), cased 4 in (0.10 m), 0-10 ft (0-3.0 m), screened 50-110 ft (15.2-33.5 m). Depth 110 ft (33.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 55 ft (16.0 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.80 ft (0.85 m) above land-surface datum.

REMARKS.--Recording Observation well. Drilled on February 1991.

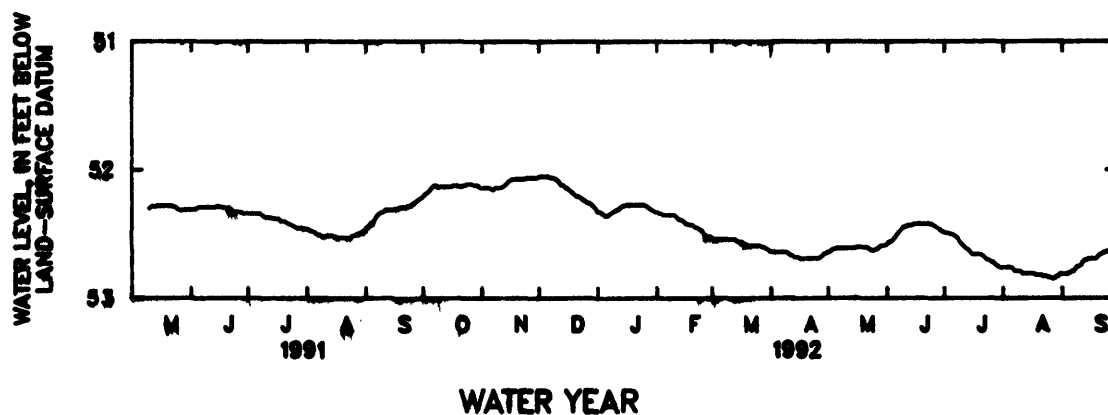
PERIOD OF RECORD.--May 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level 52.84 ft (15.9 m) below land-surface datum, Dec. 3-5, 1991; lowest water level recorded, 52.05 ft (16.1 m) below land-surface datum, Aug. 27-28, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52.21	52.14	52.05	52.33	52.33	52.53	52.64	52.64	52.58	52.49	52.76	52.01
2	52.19	52.14	52.05	52.33	52.34	52.54	52.64	52.64	52.56	52.49	52.76	52.81
3	52.18	52.14	52.05	52.34	52.34	52.54	52.64	52.62	52.56	52.49	52.76	52.81
4	52.17	52.14	52.05	52.35	52.35	52.54	52.64	52.62	52.55	52.50	52.76	52.01
5	52.15	52.14	52.05	52.36	52.35	52.54	52.64	52.61	52.53	52.50	52.76	52.80
6	52.13	52.15	52.05	52.36	52.35	52.54	52.64	52.61	52.51	52.51	52.77	52.79
7	52.12	52.16	52.06	52.35	52.35	52.54	52.64	52.61	52.49	52.52	52.79	52.79
8	52.12	52.14	52.06	52.34	52.35	52.54	52.64	52.61	52.47	52.53	52.79	52.77
9	52.14	52.14	52.06	52.33	52.35	52.54	52.64	52.61	52.45	52.56	52.79	52.75
10	52.13	52.14	52.07	52.32	52.35	52.54	52.65	52.61	52.44	52.58	52.79	52.75
11	52.13	52.14	52.08	52.31	52.36	52.54	52.66	52.61	52.44	52.59	52.81	52.74
12	52.13	52.13	52.10	52.31	52.30	52.54	52.67	52.61	52.43	52.61	52.81	52.71
13	52.13	52.12	52.12	52.29	52.39	52.54	52.68	52.61	52.43	52.62	52.81	52.70
14	52.13	52.11	52.12	52.28	52.39	52.55	52.68	52.61	52.43	52.63	52.81	52.78
15	52.13	52.09	52.14	52.28	52.40	52.56	52.68	52.61	52.42	52.65	52.81	52.69
16	52.13	52.08	52.14	52.27	52.42	52.56	52.69	52.60	52.42	52.66	52.81	52.69
17	52.12	52.07	52.16	52.27	52.42	52.56	52.69	52.60	52.42	52.66	52.81	52.69
18	52.12	52.07	52.17	52.27	52.43	52.58	52.69	52.60	52.42	52.66	52.82	52.69
19	52.12	52.07	52.18	52.27	52.43	52.58	52.69	52.60	52.42	52.66	52.82	52.69
20	52.13	52.07	52.20	52.27	52.43	52.59	52.69	52.60	52.42	52.66	52.82	52.67
21	52.13	52.07	52.21	52.27	52.45	52.59	52.69	52.60	52.42	52.67	52.82	52.66
22	52.12	52.07	52.21	52.27	52.45	52.59	52.69	52.61	52.42	52.68	52.83	52.65
23	52.12	52.07	52.22	52.27	52.46	52.59	52.69	52.62	52.42	52.70	52.83	52.64
24	52.11	52.07	52.23	52.27	52.47	52.59	52.69	52.63	52.42	52.70	52.83	52.64
25	52.11	52.06	52.24	52.27	52.40	52.59	52.69	52.63	52.43	52.71	52.84	52.63
26	52.11	52.06	52.25	52.28	52.50	52.59	52.69	52.62	52.44	52.72	52.84	52.63
27	52.11	52.06	52.26	52.29	52.51	52.60	52.68	52.62	52.45	52.72	52.85	52.63
28	52.12	52.06	52.26	52.30	52.52	52.60	52.67	52.60	52.46	52.74	52.85	52.63
29	52.12	52.06	52.28	52.31	52.52	52.61	52.65	52.59	52.47	52.75	52.83	52.63
30	52.12	52.06	52.29	52.32	---	52.62	52.65	52.59	52.48	52.76	52.83	52.63
31	52.14	---	52.31	52.33	---	52.63	---	52.59	---	52.76	52.81	---
MEAN	52.13	52.10	52.15	52.30	52.41	52.57	52.67	52.61	52.46	52.63	52.81	52.71

WTR YR 1992 MEAN 52.46 HIGHEST 52.04 DEC. 3-5, 1991 LOWEST 52.05 AUG. 27-28, 1992



## GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

182048064430400. Local number, 14.

LOCATION.--Lat 18°20'48", long 64°43'04", Hydrologic Unit 21020001, 0.27 mi southwest of Coral Bay Church, 1.05 mi southeast of King Hill, and 0.08 mi west of Hwy 107 in Carolina area. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA, Coral Bay, VIEO-4.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), 0-50 ft (0-15.2 m), cased 6 in (0.15 m), 0-50 ft (0-15.2 m), screened 20-50 ft (6.09-15.2 m). Depth 50 ft (15.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.10 ft (0.94 m) above land-surface datum.

REMARKS.--Recording observation well. Drilled on February 1991. Water levels affected by nearby pumping well.

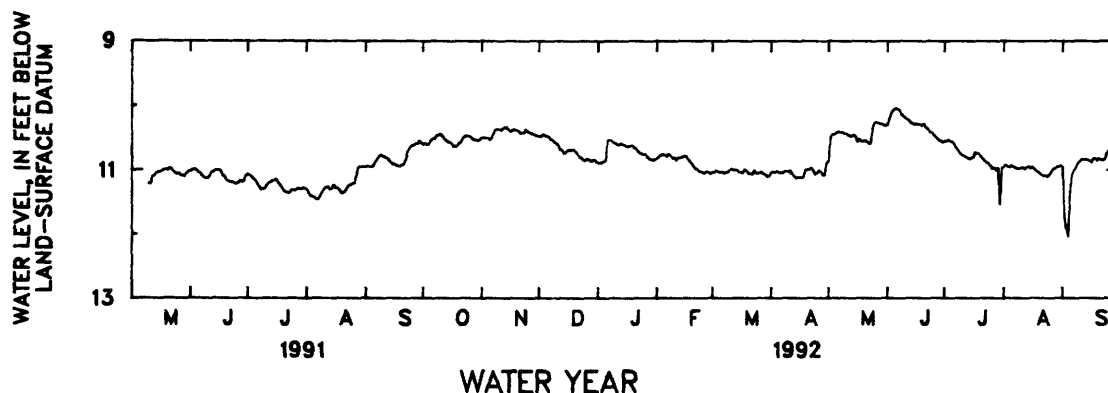
PERIOD OF RECORD.--May 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.95 ft (3.03 m) below land-surface datum, June 5, 1992; lowest water level recorded, 12.06 ft (3.68 m) below land-surface datum, Sept. 4, 1992

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.60	10.49	10.47	10.89	10.82	11.04	11.04	10.86	10.29	10.55	10.95	10.96
2	10.58	10.50	10.48	10.89	10.79	11.04	11.03	10.48	10.19	10.55	10.92	11.75
3	10.60	10.50	10.44	10.88	10.77	11.01	11.04	10.44	10.10	10.53	10.95	11.94
4	10.59	10.50	10.46	10.86	10.76	11.03	11.02	10.44	10.06	10.55	10.96	12.05
5	10.54	10.53	10.47	10.84	10.77	11.04	11.04	10.42	10.04	10.56	10.93	11.27
6	10.51	10.50	10.48	10.53	10.79	11.03	11.05	10.40	10.05	10.60	10.95	11.07
7	10.51	10.42	10.52	10.53	10.75	11.05	11.05	10.41	10.07	10.65	10.97	11.00
8	10.46	10.37	10.53	10.54	10.77	11.04	11.02	10.41	10.14	10.69	10.98	10.97
9	10.45	10.36	10.56	10.57	10.82	11.03	11.02	10.43	10.16	10.73	10.98	10.89
10	10.44	10.37	10.58	10.58	10.81	11.00	11.03	10.43	10.19	10.77	10.97	10.87
11	10.47	10.38	10.61	10.60	10.85	10.99	11.01	10.45	10.21	10.78	10.96	10.83
12	10.51	10.35	10.68	10.61	10.80	11.00	11.06	10.47	10.23	10.80	10.99	10.84
13	10.54	10.33	10.69	10.59	10.81	11.00	11.10	10.47	10.26	10.82	10.96	10.84
14	10.56	10.34	10.74	10.60	10.80	11.00	11.13	10.45	10.28	10.83	10.95	10.84
15	10.57	10.38	10.73	10.61	10.79	11.04	11.12	10.48	10.29	10.81	10.98	10.86
16	10.59	10.40	10.69	10.63	10.78	11.04	11.12	10.56	10.28	10.80	10.95	10.88
17	10.63	10.38	10.69	10.63	10.83	11.05	11.12	10.52	10.29	10.72	10.98	10.82
18	10.63	10.37	10.69	10.62	10.87	10.99	11.11	10.55	10.29	10.74	11.02	10.82
19	10.62	10.38	10.68	10.62	10.90	11.02	10.99	10.55	10.31	10.75	11.03	10.85
20	10.58	10.39	10.71	10.65	10.94	11.06	11.00	10.54	10.28	10.80	11.06	10.82
21	10.56	10.43	10.74	10.67	10.98	11.06	10.99	10.56	10.33	10.83	11.08	10.84
22	10.50	10.42	10.80	10.71	10.99	11.07	10.97	10.59	10.36	10.86	11.10	10.85
23	10.47	10.42	10.81	10.74	11.02	11.00	11.01	10.58	10.41	10.89	11.09	10.83
24	10.47	10.36	10.85	10.75	11.03	11.06	11.07	10.36	10.42	10.90	11.11	10.75
25	10.47	10.41	10.85	10.76	11.04	11.05	11.05	10.26	10.45	10.94	11.08	10.71
26	10.48	10.42	10.83	10.75	11.05	11.05	11.01	10.25	10.48	10.98	11.03	10.65
27	10.52	10.44	10.83	10.81	11.03	11.03	11.04	10.27	10.51	10.97	10.99	10.63
28	10.53	10.45	10.87	10.83	11.04	11.07	11.08	10.28	10.54	11.00	10.98	10.64
29	10.53	10.46	10.85	10.84	11.06	11.08	11.08	10.28	10.55	10.97	10.95	10.67
30	10.54	10.47	10.84	10.85	---	11.11	10.88	10.30	10.57	11.55	10.95	10.72
31	10.52	---	10.88	10.83	---	11.10	---	10.31	---	10.96	10.93	---
MEAN	10.53	10.42	10.68	10.70	10.88	11.04	11.04	10.45	10.29	10.80	10.99	10.95

WTR YR 1992 MEAN 10.73 HIGHEST 9.95 JUNE 5, 1992 LOWEST 12.06 SEPT. 4, 1992



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## FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	$2.54 \times 10^1$	millimeters (mm)
	$2.54 \times 10^{-2}$	meters (m)
feet (ft)	$3.048 \times 10^{-1}$	meters (m)
miles (mi)	$1.609 \times 10^0$	kilometers (km)
<i>Area</i>		
acres	$4.047 \times 10^3$	square meters (m <sup>2</sup> )
	$4.047 \times 10^{-1}$	square hectometers (hm <sup>2</sup> )
	$4.047 \times 10^{-3}$	square kilometers (km <sup>2</sup> )
square miles (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometers (km <sup>2</sup> )
<i>Volume</i>		
gallons (gal)	$3.785 \times 10^0$	liters (L)
	$3.785 \times 10^0$	cubic decimeters (dm <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic meters (m <sup>3</sup> )
million gallons	$3.785 \times 10^3$	cubic meters (m <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
cubic feet (ft <sup>3</sup> )	$2.832 \times 10^1$	cubic decimeters (dm <sup>3</sup> )
	$2.832 \times 10^{-2}$	cubic meters (m <sup>3</sup> )
cfs-days	$2.447 \times 10^3$	cubic meters (m <sup>3</sup> )
	$2.447 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
acre-feet (acre-ft)	$1.233 \times 10^3$	cubic meters (m <sup>3</sup> )
	$1.233 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
	$1.233 \times 10^{-6}$	cubic kilometers (km <sup>3</sup> )
<i>Flow</i>		
cubic feet per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liters per second (L/s)
	$2.832 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$2.832 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
gallons per minute (gal/min)	$6.309 \times 10^{-2}$	liters per second (L/s)
	$6.309 \times 10^{-2}$	cubic decimeters per second (dm <sup>3</sup> /s)
	$6.309 \times 10^{-5}$	cubic meters per second (m <sup>3</sup> /s)
million gallons per day	$4.381 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$4.381 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
<i>Mass</i>		
tons (short)	$9.072 \times 10^{-1}$	megagrams (Mg) or metric tons

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San Juan, Puerto Rico 00936-4424

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